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ABSTRACT

This guide is intended to help planners and trainers assess the training needs of industrial organizations. Addressed in the individual chapters are the following topics: types of training needs (three levels of needs--organizational, occupational, individual, organizational training needs and objectives, and present and future needs); present training needs (multiple-cause problems, symptoms of present needs, quantification of symptoms, training or other needs, and other weaknesses); future training needs (nature and agent of change); basic labor force planning (procedures for forecasting requirements and labor force supply); the process of identifying training needs (management responsibility, models of the process, presentation of information and determination of priorities, and reasons why assessing training needs should be an ongoing process); and approaches to training needs (different training needs; the organization development, welfare, administrative, and political approaches; metagoals as a new set of needs; responsibility for identifying needs; and some methods of data collection). Appendixes to the guide include discussions of some characteristics of five approaches to training, some data collection methods and systematic training in 10 steps. Twenty-two figures and 11 tables supplement the text. (MN)

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a guide to

the identification of training needs

by T.H. Boydell

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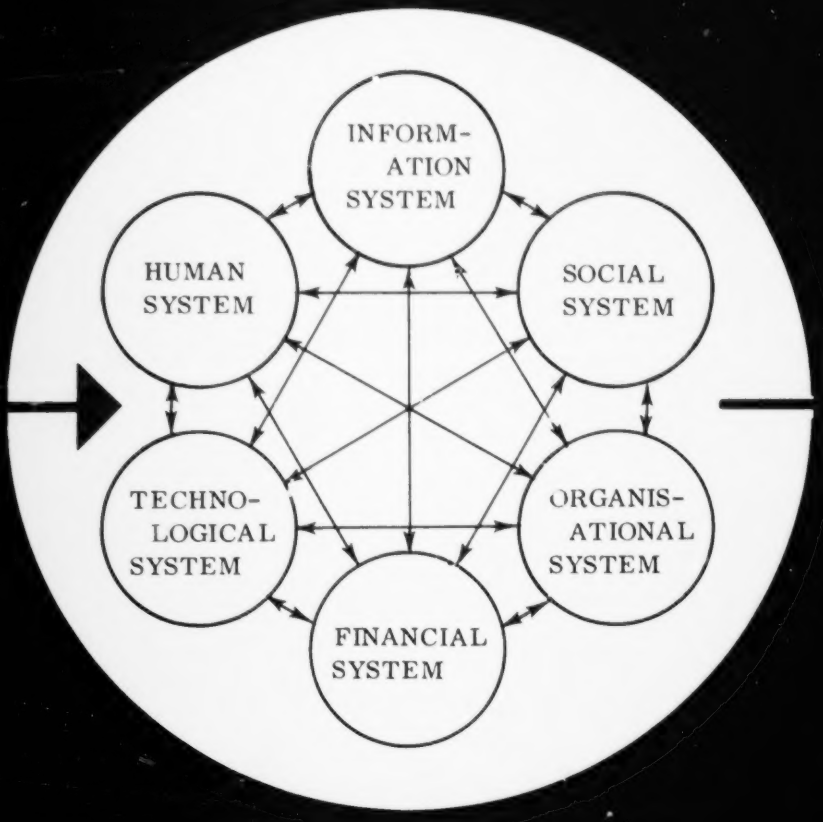

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A Guide to the Identification of Training Needs

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Introduction

TRAINING IS COMING OF AGE. THE TRIALS AND errors of the previous generations are being replaced by well-tested methods and supported by a growing body of theory. The result has been the publication, over the past decade, of a growing volume of literature on training systems and techniques.

Training, however, does not exist for its own sake. Its function is to increase efficiency, productivity, and safety; it is part of a total manpower utilisation commitment. The identification of training needs must therefore be resolved before training itself can be usefully undertaken. This booklet attempts to help the planner and trainer by analysing training needs, both present and future. It is a sequel and companion volume to the author's highly successful *Guide to Job Analysis*, first published by BACIE in 1970 and now in its third impression.

A Guide to the Identification of Training Needs first appeared in 1971. Since then it has established itself as an authoritative text in the short, concise manner of its companions on BACIE's publications list. This new edition contains additional material based on operating experience gained in the past five years.

P J C PERRY

1. What are training needs?

TODAY IT MIGHT SEEM TO BE STATING THE OBVIOUS to suggest that the basic need is for training to be aimed at solving significant problems. Yet, surprisingly little has been written on how to highlight these problems – on the key requirement of ensuring that any training which takes place is based on a proper analysis of its contribution to organisational effectiveness. It was in an attempt to fill this gap that this booklet was first written.

The nature of the subject is such, however, that it would be a mistake to imagine that a unique prescription for action is possible. A constant theme throughout the following pages is that organisations and their problems are so complex and varied that there is no *one* right answer, and therefore no attempt is made to provide one. This theme is developed in Chapter 6, on the inevitable differing approaches to training needs. Nevertheless, the aim is to show how needs may exist which can be met by systematic training, how these needs may make themselves felt, and hence how they may be identified and the problems put right.

Since these are issues which are the concern of every manager, it is hoped that, although written primarily for the training specialist, the booklet will be of value to those managers who are becoming aware of their responsibility for training.

Three levels of training needs

Let us examine the phrase 'training need'. The word 'need' implies that something is lacking – there is a shortfall somewhere. The word 'training' further implies that this lack can be supplied by systematic training. It can thus be said that a training need exists when the application of systematic training will serve to overcome a particular weakness.

There is, however, a great deal of confusion over the exact meaning to be put to 'training need'. As, unfortunately, is the case with many other terms associated with training, different people refer to different things whilst using a common title.

In this case, although there is agreement that we are talking about a shortfall capable of being put right by training, confusion arises because of lack of agreement over the area to which this shortfall applies.

There are in fact three main areas to which the term 'training need' may be applied.

1 Needs at organisational level

Here we are talking about general weaknesses – we are trying to highlight where, in the organisation, training is most needed.

2 Needs at occupational level

By this we mean what is needed, in terms of skill, knowledge and attitude, to carry out the various duties related to a particular job or occupation.

3 Needs at individual level

Having determined the organisational and occupational needs, we are now trying to determine who needs training in what; that is, we are discovering deficiencies in particular skills, knowledge and attitudes on the part of individuals.

These three levels of training need are summarised in Table 1. It will be noted that only one of these, organisational level, is referred to as 'identification of training needs', and this is the subject of this booklet. Occupational needs are discovered by the process of job analysis, and the identification of individual needs is called 'assessment'. The place of each in the approach to systematic training is outlined in the booklet on job analysis*.

*See *A Guide to Job Analysis*, by T. H. Boydell. BACIE, in impress., 1977.

The difference between occupational needs (job analysis) and the other two is quite clear, and requires no further discussion. Experience has shown, however, that many people find it hard to understand the division between organisational needs and individual needs.

Since we are dealing with people who are to be trained, it can be argued that even at organisational level we are concerned with individuals. This is true, but we are really looking at them impersonally; we are not concerned with individual skill/knowledge/attitude weaknesses, but rather are looking for areas where it is apparent that such weaknesses, which remain to be detailed, exist.

In this context the 'organisation' may range from an entire company, or group of companies, down to particular establishments, departments, or even sections. Identifying needs in an entire, large company will be almost entirely a statistical exercise, but as the size of the organisation diminishes, so inevitably some individual needs will become apparent; indeed, organisational needs and individual needs may tend to become synonymous. (See Case 1.)

Organisational training needs

We have seen, then, that we are talking about general weaknesses in the organisation. It still remains, however, to define the term. As previously discussed, the word 'need' implies a shortfall. We now have to answer the question, 'a shortfall in what?'

Since every organisation has an objective or objectives, to which its efforts are directed, this question can only be answered in a meaningful way by relating the shortfall to these objectives. Having said all this, we must recognise that in practice many organisations have only the vaguest of objectives, and that these are often not disclosed to line managers or training officers. In such cases an attempt should be made to get some objectives agreed with management; failing this, some *qualitative* rather than *quantitative* estimate of likely objectives can be made, and training needs and priorities related to these. For example, an objective could be to reduce costs in some way, or increase productivity. This at least represents an advance on the 'they've never had it, therefore they need it', approach. We can thus say that an organisational training need exists when:

(*a*) In a particular area (establishment, department, section or occupational group) a barrier exists which either

(i) is hindering the achievement of the organisational objectives, or

(ii) which will, at a determinable time hence, hinder the achievement of the organisational objectives, or

(iii) which, if removed, would permit alternative, more desirable, organisational objectives to be achieved;

(*b*) This barrier may be removed by systematic training as against some other remedial activity. (This is discussed in the second chapter, 'Present Training Needs'.)

Condition (*a*) (iii) above – the situation in which a more desirable objective could be achieved – is often particularly difficult to identify. It may well be, as in Case 2, that current objectives are being attained, and it often requires a high degree of perception and understanding of the work of a department to recognise circumstances in which better targets may be possible. In the example cited, the training officer was trying to identify needs as his project for a training officer course, and was thus determined to *find* a need, which, in fact,

Case 1

In a small hotel, it was found that a significant proportion of guests complained that the hall porter (there was only one) was very off-hand. This fact identified needs at all three levels:

(*a*) Organisational – porterage department was a main area of need.

(*b*) Occupational – social skills were essential for the hall porter.

(*c*) Individual – John Evans, hall porter, needed training in social skills.

Case 2

In the cold-rolling department of a small steel company, production targets were being met. Everybody, from the manager to the operators, was convinced that no training need existed. Investigation by the training officer, however, showed that certain controls on the rolling mills were never used. It further transpired that, although nobody knew how to use these controls, they represented one of the main advantages of the machines, and that they could speed up production substantially.

Following his recommendation, training in the use of these controls was given, and productivity rose by 30 per cent. It was thus possible to set, and achieve, a much more desirable objective.

certainly existed. In a normal working situation, however, he might well have been content to assume that, since all appeared well, no further investigation was necessary.

Organisational objectives

Organisational training needs have been defined in relation to organisational objectives. It is therefore clearly important to know what these objectives are.

1 The multiplicity of objectives and sub-objectives

When asked the question, 'what are the enterprise objectives?' many people answer, 'to make as much profit as possible, of course'. The reply is made, without any apparent thought, and might indeed be said to be a reflex action.

Profit maximisation, however, so long the central assumption of much economic theory, is no longer considered a viable doctrine by most authorities in the field. This is not the place to enter into a lengthy discussion on this matter, but the inherent weaknesses in this theory can be seen immediately one asks the question, 'how are profits measured?' and, 'over what time span are they to be measured?' (In an extreme case, no doubt very large profits could be made immediately by selling equipment, buildings, etc, but next year the company will be out of business altogether.) Maximisation of *long-term profitability*, that is, the rate of return on investment, would certainly be a more realistic objective.

There is ample evidence, however, that not only do firms suffice, rather than maximise, but that the key parameter is not profits but some other, such as sales. Other organisations, of course, are not concerned with profits in any way (hospitals, schools) but aim to maximise service, given limited resources.

A partial, far from complete, list of possible objectives/sub-objectives, to be considered when identifying training needs, is given in Table 2. Each of these will, of course, have further associated sub-objectives in a given situation.

Table 1 Three Levels of Training

Level of training need	*Main question to be answered*	*Typical conclusions/recommendations*	*Process referred to as:*
Organisational	Where is training most needed? i.e., in which department or section? *or,* for which occupational group?	1. The most urgent need is in the cold-rolling department, or 2. the most urgent need is for clerical training throughout the organisation, or 3. successors for Managers A, B and C must be trained before the latter retire in twelve months' time.	Identification of Training Needs *Step No. 1**
Occupational	What skills/knowledge/attitudes are required for a particular occupation?	Skills / knowledge / attitudes required are . . . (usually written as a Job Specification)	Job Analysis *Step No. 3**
Individual	Which individuals require training to attain which particular skills/knowledge/attitudes?	1 (*a*) Henry Roberts, cold roller, needs training in faults recognition and correction. (*b*) Joseph Brown and Richard Jones, assistant cold rollers, need training in safe-lifting procedures, or 2 All new clerical entrants will require training in the following . . . , or 3 (*a*) David Henderson requires training in . . . to succeed Manager A. (*b*) James Richards requires training in to succeed Manager B. (*c*) A replacement for Manager C will have to be recruited externally.	Assessment *Step No. 4** (*also 9 and 10*)

* *ibid.*, pp 4 and 5.

Table 2 Organisational Objectives

These objectives and sub-objectives may be set in terms of any of the following parameters

Profits (long-, short-, or immediate-term)

Profitability as a ratio to:
- capital employed
- turnover
- sales volume
- numbers employed

Sales: – value
– volume

Market share

Standards of service
Reputation
Net worth
Return to shareholders
Innovation
Productivity
Industrial relations
Growth: – absolute (i.e. size)
– rate of growth of other parameters

N.B. This list is not meant to be exhaustive but gives an indication of some areas.

It should now be clear that training needs can only be defined in relation to the overall corporate plan of the organisation. Far too often one hears the statement, 'such-and-such employees require training because they haven't had any' or, 'induction training must be implemented to cut labour turnover'; but is labour turnover really the problem? How much does it cost the company? Will the reduction bring about a saving greater than the cost of the training? Could bigger savings not be obtained in some other way? Would a saving of, say, £1,000 be worth considering in an enterprise whose annual profits were 1,000 times as great?

2 The importance of quantification

We cannot plan or control without data. It is only possible to determine the extent to which a desired goal is being achieved if that goal is expressed in quantified terms. Phrases such as 'adequate sales', 'acceptable labour turnover', 'desirable output', are unmeasurable and meaningless*.

Present and future needs

It is important, therefore, that objectives be set in measurable terms. These terms may be absolute (e.g., sales of £2m) or, failing that, relative (e.g., reduce labour turnover by 5 per cent). Clearly, too, this is essential if any form of external validation is to be carried out.

It will be recalled that a training need was said to exist when a barrier, removable by training, either is hindering the achievement of objectives, or will at some future time hinder this achievement.

It is therefore convenient to subdivide organisational training needs into *present needs* and *future needs*, corresponding respectively to the above two situations.

The third situation in which needs exist – that in which more desirable objectives could be met if the barrier were removed, obviously obtains at the present time. However, in a sense it is concerned with achieving an objective yet to be set – the more desirable one – and is therefore more properly to be classified as a future need.

Current needs are due to *faults* in the present situation; to solve such needs will, of course, involve change, but this change occurs after the need is identified. Future needs on the other hand, will arise *as a result of* change.

It must be emphasised, of course, that this subdivision is only for convenience. One must not assume that *either* current *or* future needs exist at any point in time, since it is more likely that they will both be found together. Rather, the classification of needs in this way is intended as a concept which has been found useful when learning about what can otherwise tend to become a somewhat confusing subject. For this reason, current and future needs will each be discussed in turn.

Case 3

A member of an introductory training officer course had, a few years previously, owned and run a small restaurant which specialised in very high standards of classical cuisine.

Discussion revealed that the financial rewards had been meagre. When it was pointed out that much more money could have been made, in the same locality, and with the same resources, by operating a fish and chip bar, the reply was 'I know that, but I enjoy classical cooking and got great satisfaction out of it'.

What were his objectives? Why did he eventually give up his business?

**Management by Objectives*, by J. Humble. BIM, 1972. p. 83. Humble describes such words as 'comfortable', and says that they are associated with 'poor standards'.

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2. Present Training Needs

PRESENT TRAINING NEEDS HAVE BEEN DEFINED AS existing when a barrier exists which is hindering the achievement of objectives and which may be removed by training. Such needs are thus caused by *faults*, and may be identified by looking for corresponding *symptoms*.

Multiple-cause problems

Organisations are extremely complex, and in consequence it would be naive to think that a particular problem can be traced back to one particular cause. Many training specialists, however, do just this. For example, if productivity is low they look for a possible cause; it may well be that lack of skill training is a contributory factor, but there may be many others, all operating simultaneously, such as bad production planning, lack of control, poor payment structure, and so on.

The situation is in reality even more complex. Let us examine three factors which might affect the way in which a manager works – skill level, aspirations, health. It should be clear that each of these can have an important part to play in determining his effectiveness.

Case 4

A training officer was investigating training needs in the strip-mill of a steel company. The only records available were of labour turnover, which was extremely high amongst newly-appointed junior operatives. This led the training officer to wonder if the transition from school to fairly rough working conditions was the cause of the problem. However, an induction programme was in operation, and a study of this indicated that it was reasonably effective, since labour turnover of similar juniors in other, equally unpleasant surroundings, was not particularly high. Further investigation showed that in the strip-mill the newcomers suffered a large number of comparatively minor but very painful injuries through cutting themselves on the sharp edges of the steel strip. The situation was soon remedied by basic skill training in safe-handling techniques.

What was the true symptom: labour turnover, accident rate, or people's reasons for leaving?

To what extent can one symptom cause or impinge on another?

In addition, however, his skill level will affect his aspirations. It is reasonable to assume that, other things being equal, the higher his ability the greater will be his aspirations. But the converse is equally true, since a man with high aspirations will probably work and learn in such a way as to increase his skills.

Again, a man's aspirations may well be determined to some extent by his health; at the same time, a change in aspiration level may produce a change in health, either better or worse, as studies into functional disease show very clearly.

Finally, a man's skill level may obviously depend on health, just as health, for psychosomatic reasons, can be altered by skill level changes.

Figure 1 shows these three factors; an arrow indicates dependent relationship.

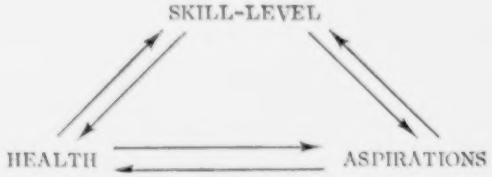


Fig. 1 Interdependence in a system

A set of relationships of this nature may be referred to as a *system*, which can be defined as a set of factors such that a change in any one may cause a change in the others, that is, everything depends on everything else.

The three-element system of Figure 1 is quite simple. Many other elements may be added to make a *human system* as it may exist within the organisation.

Human system

physique	perception of situation
health	reference group
aptitudes	sex
skills	married/single
knowledge	culture
attitudes	needs
values	motivation
personality	*etc*

The human system is, however, only one of many systems which together enable the organisation to function. Figure 2 symbolises a systems

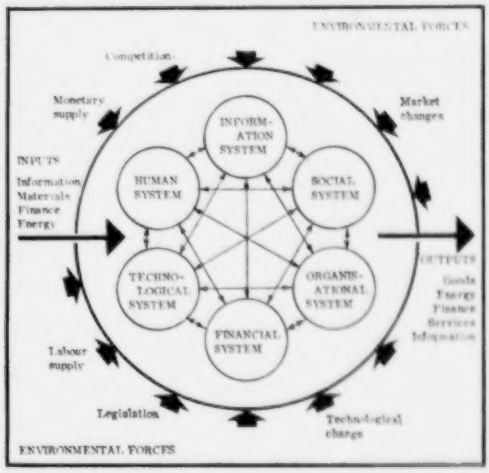


Fig. 2 Systems model of organisation

model of the organisation, which takes in energy, information and materials. As a result of the interactions between the various systems, the organisation is able to provide outputs of goods, services, energy and information. There will, of course, exist other systems than those shown and in any case each system is made up of a number of sub-systems.

The human system has already been described; elements of the other systems would include:

Technological system
- equipment
- methods
- processes
- work-flow
- inventory
- physical conditions
- *etc*

Financial system
- liquidity
- cash flows
- payment structure
- *etc*

Organisational system
- structure
- leadership
- performance assessment
- *etc*

Social system
- groups
- teams
- norms
- informal communication

Information system
- communication channels
- communication procedures
- budgeting procedures
- control procedures
- *etc*

The systems concept of organisation is very useful when considering training needs. Remembering that a change in any element of a system may cause changes in other elements highlights the fact that problems in one area may be caused by weaknesses elsewhere. It is essential to take this into account when identifying needs, otherwise it would be very easy, if thinking only in single-cause terms, to come to very false conclusions as to what the need is.

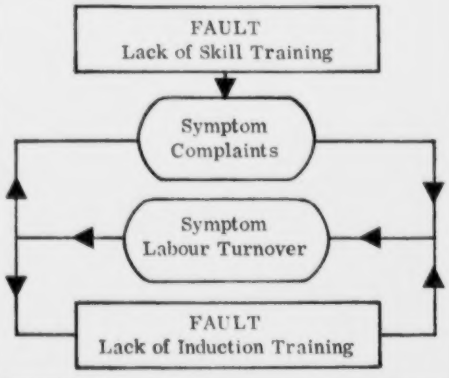
Further, any change in one area planned to overcome an identified problem may have widespread effects throughout the other systems, and these must be considered before action is taken.

Symptoms of present needs

There are as many possible combinations of symptoms as there are situations, and any list of symptoms must therefore be partial and incomplete. At the same time, in any particular situation any number or combination of symptoms may obtain, particularly since one symptom may arise as a direct consequence of another. (See Case 4.) Further, a particular symptom may cause yet another basic fault to occur, causing a vicious circle (or, worse, spiral) of cause and effect feedback. (See Case 5.) This illustrates one of the basic

Case 5

The head waiter in a restaurant gave new entrants short but effective induction training. However, he did not give any basic skills training, and in consequence many customer complaints were made. Since these complaints were often made directly to the waitresses, many became emotionally upset and left. Labour turnover was therefore high. As a result, the restaurant became short-staffed, and the head waiter was overworked helping service. He therefore found no time for his induction training, which ceased. Labour turnover rose further; more and more complaints were received. Finally the manager responded by sacking the head waiter.



principles of our problem-solving exercise (of which the identification of training needs is, of course, an example), that one of the first things to do is to determine what the problem really is, as opposed to what it appears to be. In other words, the system-effect will operate.

The possible symptoms in Table 3 should therefore be looked on as providing a list of clues to be looked for, rather than being a definitive statement of 'indicators of training need'.

It should be clear that these symptoms all have a bearing on the achievement of the organisational objectives. Referring again to Case 5, in which the prime need was for basic skills training, the first symptom was an increase in customer complaints. This led to a poor reputation, fewer customers, and thus loss of profit. Once labour turnover entered the picture the loss was greater (even before the vicious spiral caused yet more complaints) because of direct recruitment costs, overtime payments, and the costs associated with the head waiter not doing his real job.

Quantification of symptoms

Table 3 is full of vague words such as 'high', 'low', 'rising', 'falling', 'excessive'. In a real-life situation it is essential, wherever possible, to quantify the data. Some methods of symptom-quantification are summarised in Table 4.

However, even a definite figure for a particular parameter is in itself meaningless. The figure must be compared with a norm, which in turn should be related to a stated objective.

Take labour turnover, for example. Does the fact that this is running at 40 per cent p.a. indicate a major problem? In an engineering company, this figure might well be considered to be very high. In the hotel industry, however, where 120 per cent p.a. labour turnover is common, it probably would not be considered a major problem. Indeed, if an objective of reducing turnover from 120 per cent p.a. to, say, 60 had been set, then this would be considered very successful.

Of course, such an objective would clearly be a 'secondary' one. It would be far preferable to express labour turnover in financial terms, for example, 'to cut the cost of turnover from £20,000 p.a. to £10,000 p.a.'. Unfortunately, whilst some data (e.g. scrap) are relatively easy to translate into financial terms, others (e.g. customer complaints) are extremely difficult, if not impossible. In this case, 'secondary' objectives and norms must be set (for example, compare the number of complaints received this year with those received last year).

In practice it is very common to find that no objectives have been set. This presents the training specialist with a problem, one approach to which is as follows:

(*a*) Compare the particular parameter value (e.g. accident rate) with appropriate norms. For example,
- national statistics,
- inter-firm figures,
- other departments/sections within the organisation,
- previous time periods;

(*b*) Decide if worthwhile improvements are possible;

(*c*) Establish targets with managers involved.

Table 3 Possible Symptoms which May Suggest a Training Need

Low/falling	OUTPUT
High/rising	SCRAP/WASTAGE
Low/falling	STANDARDS OF PERFORMANCE
Long/rising	TIME TO PERFORM TASKS
Long/rising	TIME TO LEARN HOW TO PERFORM TASKS
Low/falling	UTILISATION OF MACHINES AND EQUIPMENT
High/rising	ACCIDENT RATE
High/rising	LABOUR TURNOVER
High/rising	ABSENTEEISM
Excessive/increasing	DELAYS
Excessive/increasing	DISPUTES
Excessive/increasing	CUSTOMER COMPLAINTS
Continuing/increasing	RECRUITMENT PROBLEMS

Table 4 The Quantification of Some Symptom Data

Parameter	*Unit*	*Calculation*	*Comments*
Output	Units produced per unit of time	Self-evident	Production activities.
Scrap/wastage	Percentage	$\text{Scrap, per cent} = \dfrac{\text{No. of units rejected} \times 100}{\text{Total units produced}}$	
		$\text{Wastage, per cent} = \dfrac{(\text{Raw materials actually consumed } \textit{less} \text{ Raw materials required for output}) \times 100}{\text{Raw materials required for output}}$	
Time to perform tasks	Minutes; hours; days	Self-evident	Service activities in particular.
Accidents	1. Frequency	$\text{Frequency rate} = \dfrac{\text{Number of lost-time accidents} \times 100{,}000}{\text{Man-hours worked}}$	A lost-time accident is one such that the person injured cannot continue his *normal* duties beyond the end of the day in which the accident occurred.
	2. Mean duration rate	$\text{Mean duration rate} = \dfrac{\text{Number of man-hours lost}}{\text{Number of lost-time accidents}}$	Fatal accidents are excluded.
Absenteeism	Percentage	$\text{Absenteeism, per cent} = \dfrac{\text{Number of man-hours lost} \times 100}{\text{Total number of possible hours}}$	
Labour turnover	1. Percentage	$\text{Labour turnover, per cent} = \dfrac{\text{Number of leavers in a given period} \times 100}{\text{Establishment over same period}}$	Effect of part-time and temporary/seasonal staff may confuse the picture. Survival curves are often more meaningful than any of these indicators. (See chapter on Basic Manpower Planning.)
	2. Stability index	$\text{Stability index} = \dfrac{\text{Number of employees with one year's service} \times 100}{\text{Number of employees at beginning of year}}$	
	3. Half-life	Half-life = time elapsing before a particular entry-cohort is reduced to 50 per cent of its original size.	

Training or other needs

It cannot be stressed too heavily that it would be a great mistake to assume that training can cure all ills. (This statement will be qualified later in this section.) In other words, the existence of a symptom does not necessarily mean that training can solve the problem. Many newly-appointed training specialists, fired with enthusiasm (or, as some would have it, with imperial zeal), fall into the trap of assuming that all faults can be put right by means of a quick training programme. In fact, most situations are so complex that several different remedies applied to a number of different systems, some of which may involve training, will have to be applied simultaneously.

As an illustration, take a case in which the output of a particular section is decidedly lower than that planned for. Let us consider some possible reasons.

1 **Incorrect target-setting** (*Technological system*)
The first question to consider is whether or not output really is low, or an unrealistic target has been set? The latter situation may either be considered a non-training need or a 'secondary' training need – the person who set the targets may need training, not the operators who were in fact displaying the symptom.

2 **Lack of operator competency** (*Human system*)
This is probably the reason which will first be considered by the training specialist. Clearly, if the operators working the machines simply do not possess the required skills and knowledge, then their output will not reach the required level. This is thus an immediate training need.

3 **Lack of motivation** (*Human system*)
Motivational problems may well lie at the root of most cases in which output is low.

Motivation is an extremely complex subject, and much has been written in recent years about it.

Discussion of this topic is beyond the scope of this booklet; an excellent introduction can be found in chapters 10 and 11 of the book by L. J. Kazmier*.

4 **Unsuitable equipment** (*Technological system*)
Low output may well be caused by the use of inadequate, unsuitable or worn-out machinery, tools and other equipment. Again, someone else (management, maintenance staff, etc) may need training, and thus this may be considered a possible 'secondary' training need. Or the machinery may be worn out because of lack of money for purchasing new equipment. This shows that a problem which first appears in one system may have its root cause in another – in this case the financial system.

5 **Inappropriate methods** (*Technological system*)
It may be that specified methods, materials flow, etc are not suitable. Non- or secondary-training need.

6 **Working environment** (*Technological system*)
Another possible cause of low output may be a poor working environment. Noise, temperature, lighting, dirt, lack of space, can all cause a reduction in the amount of work completed. Non- or secondary-training need.

7 **Poor leadership** (*Organisational system*)
Supervision may be bad – for example the operators may spend half their energies hating the foreman. Or the latter may fail to tell the men the importance to the firm (and hence to their livelihood) of fulfilling the contract, perhaps because he himself is unaware of this (*Information system*).

8 **Group norms** (*Social system*)
It is not uncommon for people deliberately to restrict their output to avoid peer group disapproval.

The statement earlier in this section that training cannot cure all ills may now be reconsidered. Whilst it is certainly true that training of the people directly demonstrating the symptom (in this case the operators producing low output) may not solve the problem, the possibilities outlined above show that the solution may lie in changing the

Table 5 Some Other Possible Weaknesses

Lack of corporate plans and objectives.
Managers ignorant of their responsibilities.
Managers ignorant of responsibilities of colleagues.
Lack of financial plans.
Lack of control systems (e.g. cost control; inventory control).
Ignorance of organisation/communication channels.
Poor/non-existent forecasting (e.g. product demand; technological change).

**Principles of Management* by L. J. Kazmier. McGraw-Hill, 3rd ed., 1974.

behaviour of other people within the organisation. This then becomes a question of semantics – how do we define 'training'? Again, what is the difference between 'training' and 'development'? The reader can answer these questions for himself, but whatever the semantic answer, it is clear that some form of behavioural change is necessary to overcome these problems, and the training specialist is very much involved in initiating these changes.

Other weaknesses

There may be other weaknesses in various systems which in themselves only directly lead to obvious symptoms, but which may contribute very significantly to problems. Table 5 lists a number, but clearly these are not definitive or exhaustive. The reader should try to think of others, relating them to the various systems which he can identify within his own organisation.

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3. Future Training Needs

FUTURE TRAINING NEEDS HAVE BEEN DEFINED AS existing when training can remove a future barrier to the achievement of objectives or when, by removal of such a barrier, even more desirable objectives will be met.

It is clear, then, that we are here dealing with *change*.

(i) *Change in objectives.* For a host of reasons, objectives may change. Indeed, any organisation which does not change its objectives could be described as unhealthy, since the environment is altering so rapidly that failure to change will cause stagnation or even death.

(ii) *Change in factors affecting achievement of objectives.* Even if objectives do not change, a variety of other factors (for example, labour supply) almost certainly will alter, and problems of objective achievement will result.

(iii) *Combination of (i) and (ii).* In reality, it is highly probable that both objectives and factors affecting their achievement will be in a process of continuous change.

The nature of change

It is impossible to give a definitive list of possible changes. However, some examples might include:

1 Product changes

(*a*) *Demand.* The demand for a product, in both home and overseas markets, may increase or decrease. This may be caused by population shift, changes in tastes, fashions and values, increase or decrease in competition, technological obsolescence, and so on.

(*b*) *Nature.* For similar reasons, the nature of the product (or service) may have to be changed if an organisation is to survive.

(*c*) *Mix.* As demand for certain products changes, so the product mix will clearly need to be reconsidered. *Example:* The changing product mix between monochrome and colour television receivers, as a result of technological development, increasing incomes and 'fashion' (to some extent created by marketing).

2 Technical changes

(*a*) *Processes/methods.* Technological developments may permit more efficient processes, methods and machinery to be used. Current methods may become obsolete.

(*b*) *Raw materials.* Raw materials (including fuel) may become unavailable or far too expensive. More attractive raw materials may become available. *Example:* Drastic reduction in the supply of coke on account of exploitation of natural gas.

3 Financial changes

Credit may become extremely hard to obtain. Many companies, with good products and profitability, have become bankrupt because of inability, in the short run, to obtain enough liquid cash to meet wage bills.

4 Personnel changes

(*a*) *Replacements.* Caused by wastage and retirements. The most critical area will be managerial posts.

(*b*) *Sex.* High employment in the area may determine that in future women may be employed for jobs that in the past have been done by men. This may mean that the nature of the work will have to be altered. Conversely, equal pay for women may lead to a reduction in the number of females employed.

(*c*) *Supply.* Rehousing schemes, depopulation or the opening/closing of competitors in the labour market may make considerable changes in the supply of potential employees.

(*d*) *Race/religion.* Immigration and population drift may cause extreme changes in the racial and religious make-up of employees. Cultural and group norms may be similarly affected.

Case 6

A company manufactured hydraulic equipment for use on aircraft. About half of the output went into civil machines, the other half into military aircraft.

During the late 1950s and early 1960s, it became increasingly apparent that this was possibly a dangerous market to be in, subject as it was to governmental changes and cancellations, and very rapidly increasing development costs. It was therefore decided to diversify into providing equipment for industrial purposes, such as earth-moving equipment, agricultural machinery, lifting equipment, and so on.

This led to many changes:

(*a*) For example, much lower standards of finish, reliability, inspection and testing could be tolerated; therefore, emphasis shifted from testing to production, and many test personnel had to be retrained.

(*b*) In the past, on account of cost-plus pricing arrangements with emphasis on quality, the design staff had not given a lot of thought to the manufacture of their products. In the highly competitive industrial field, however, cost is all critical. The design engineers, therefore, had to be retrained to become much more production conscious.

(*c*) Similarly, managers, who were nearly all engineers by training, tended to concentrate on quality of product and the solution of engineering problems without thought to the costs. This called for a major programme to change managers' attitudes and to make them far more cost conscious.

(*e*) *Educational opportunities.* With gradually increasing educational attainments and opportunities, the nature of employee supply is altering. Hence the complaint of banks that it has become increasingly difficult to recruit boys and girls with A-levels to become bank clerks; the reason is that such people are now enrolling at universities and polytechnics, since there are now far more places available than there were ten years ago.

5 Legislation

An increasing amount of legislation is affecting the setting and achieving of organisational objectives. For example:

Value Added Tax
Employment and Training Act
Corporation Tax
social security benefits
Price Commission
Employment Protection Act
Race Relations Act
metrication
regional development programmes
Equal Pay Act
Health and Safety at Work etc. Act

6 Political changes

On a wider scale, political changes, both at home and abroad, may have considerable effect. Examples include: change of government; policies of the European Economic Community; international tariffs; wars.

Any of these changes – some of which could cause major organisational problems – may give rise to a host of needs. Many, indeed most, of these will not be 'training' needs as such, but again many of the resulting problems will be amenable to solution by training. Cases 6 and 7 show two examples in which some of the problems resulting from change could be solved by training and development.

An agent of change

For a moment, let us reconsider the training specialist dealing with current problems. These can be shown in the form of symbolised diagrams. Figure 3 shows the training officer sensing weaknesses in the organisation and reacting to them in order to put them right. In such a case, where he is reacting to problems and putting them right by causing change, he may be described as a *reactive change agent.*

Now consider the training specialist in an organisation which is experiencing forces of change

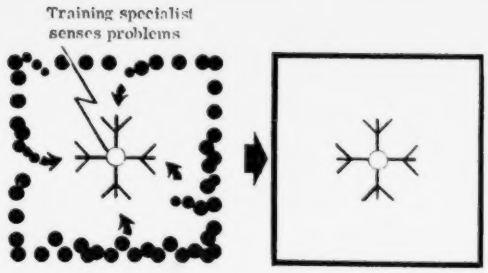


Fig. 3

acting on it, both from within and without. He senses these forces, identifies future needs, and takes steps to meet them (*Fig.* 4). Again, the training specialist reacts to pressures of change and takes appropriate action: he is a *reactive change agent.*

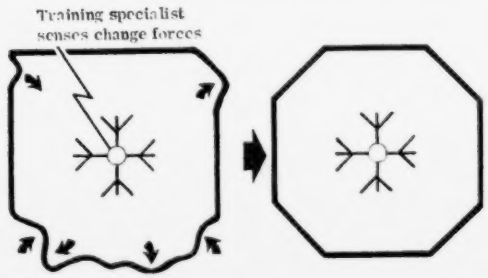


Fig. 4

There is, however, a third possibility. In this case, the organisation is not under stress from change forces until the training specialist himself recognises that changes could be made which would make an already healthy organisation even more so (*Fig.* 5). This is similar to the condition (*a*) (ii) page 5 under the sub-heading 'Organisational training needs'. Thus, all the forces of change come from the training officer: he is not reacting either to current problems or to existing forces, but is creating change, and he may therefore be referred to as a *proactive change agent.*

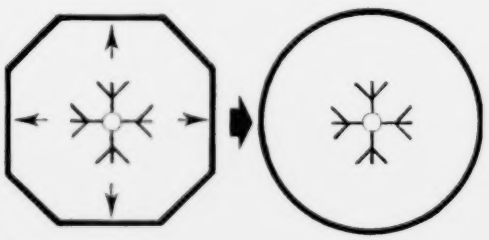


Fig. 5

Case 7

New polytechnics, formed from major colleges of technology, were faced with staffing problems in order to achieve their objective of running only advanced courses.

In a particular department at one polytechnic some of the training problems were resolved thus:

(*a*) Selection of new staff became much more rigorous. One of the main criteria was that newcomers had to have promotion potential; that is, as time went on, they had to be able to make an increasing contribution to new and higher level courses. Thus there was a shift from 'maintenance men' to innovators.

(*b*) Full- or part-time release for staff to obtain higher qualifications in relevant fields was increased five fold.

(*c*) Internal development programmes in the field of learning theory and methods were introduced.

(*d*) Team-building programmes were introduced and the organisation structure altered from a hierarchical one to an organic one.

(*e*) Staff whose specialisms became redundant were encouraged to enter new fields or, in some cases, to find more suitable posts elsewhere.

(*f*) Secondment for periods of up to 12 months to work in a variety of organisations, both in this country and overseas, was provided.

(*g*) Consultancy was encouraged in order to ensure that staff kept in touch with current problems in industry.

(*h*) Most important, all these actions were taken as part of a planned, on-going (and, in the short run, expensive) development programme.

4. Basic Manpower Planning

ONE ASPECT OF THE IDENTIFICATION OF ORGANISAtional needs that has not yet been discussed is manpower planning. There are several definitions of the term, many incorporating most aspects of what we would call systematic training. Here we will define manpower planning as follows:

'To ensure adequate numbers of competent personnel in particular occupations, at given times, consistent with, and related to, the overall business strategy.'

There are three main stages in this process, each of which will be considered in turn. These are:

forecasting requirements
forecasting supply
reconciling requirements with supply

First, however, it must be emphasised that manpower planning should be done at the same time as the overall business plans are being made, since each affects the other. For example, it would be quite pointless to plan for greater market penetration only to find the manpower requirements unattainable. Thus, manpower considerations should be taken into account right from the commencement of corporate plan formulation.

Forecasting requirements

A variety of more or less sophisticated techniques is used for the forecasting of manpower requirements. Many of these require considerable expertise in statistics.

The intention here, however, is to describe some of the more elementary approaches. As presented, they require virtually no mathematical ability.

1 Judgment

The simplest method of forecasting merely involves people giving their considered judgment on what the requirements will be. This may be done either by one person or by a group acting in committee. Alternatively, several individuals may give their own separate estimate, and an average taken.

At its worst, this approach can be no better than wild guesswork. However, if due consideration is given, it can be a great improvement on the alternative of making no estimate at all.

2 The use of constant measures

This approach may be used when there is reason to believe that the relationship between manpower and some other variable, (for example, output) will remain constant during the time period under consideration. Examples 1 and 2 illustrate this approach.

Example 1

Assembly department in an engineering company

Analysis shows that time to assemble one unit is 20 man hours.

Ratio Number of units assembled : man hours worked
= 1 : 20

Assume a 40-hour week, 48 working weeks per year

Then Number of units/man/week = 40 ÷ 20 = 2
Number of units/man/year = 96

Hence

	Year				
	1	2	3	4	5
Estimated production	2,400	3,000	4,000	5,000	6,500
Assembly operators required	25	32	42	52	68

Example 2

Growing firm of consultants

It is estimated that each consultant can handle, on average, five assignments per annum.

Ratio Number of contracts : number of consultants = 5 : 1

Hence

	Year				
	1	2	3	4	5
Estimated number of contracts	25	35	45	60	80
Consultants required	5	7	9	12	16

Further, it is expected that one secretary/typist/clerical assistant is required for every three consultants.

Ratio Number of clerical staff : number of consultants = 1 : 3

Hence

	Year				
	1	2	3	4	5
Consultants required	5	7	9	12	16
Clerical staff required	2	3	3	4	6

3 The use of constant measures with discrete changes

Examples 1 and 2 assumed that the measure in question would remain constant throughout the forecast period. Often, of course, this is not so. Changes may occur gradually, over a period of time (see 4 'The use of time trends'), or in discrete steps or jumps. Example 3 illustrates this point.

Example 3

The same assembly department as in Example 1

It is now anticipated that the units in question will be altered at the end of year two so as to enable each unit to be produced in 15 hours.

Ratio Number of units assembled : man hours worked = 1 : 15

Then Number of units/man/week = 40 ÷ 15 = 2·67
Number of units/man/year = 128

Hence

	Year				
	1	2	3	4	5
Estimated production	2,400	3,000	4,000	5,000	6,500
Ratio	1 : 20	1 : 20	1 : 15	1 : 15	1 : 15
Assembly operators required	25	32	32	39	51

Suppose, in addition, that in return for this higher output per man a 38-hour week is introduced.

Then Number of units/man/week = 38 ÷ 15 = 2·54
Number of units/man/year = 122

Hence

	Year				
	1	2	3	4	5
Estimated production	2,400	3,000	4,000	5,000	6,500
Ratio	1 : 20	1 : 20	1 : 15	1 : 15	1 : 15
Hours/week	40	40	38	38	38
Assembly operators required	25	32	33	41	54

4 The use of time trends

Section 3 above described the case in which definite, major, discrete changes in the measure concerned took place. Often, however, where such a jump is not anticipated, it is expected that, as time goes on, continuous gradual changes will occur. These may be anticipated by a study of trends.

Trend forecasting is full of pitfalls and problems. In the first place, it is necessary to have sufficient data to discern a reliable trend; usually it would be considered essential to have previous data going back over a period at least equal to that for which the forecast is being made. Thus, if we are predicting needs for the next five years, records for the previous five years must be available.

Secondly, there is the problem of curve-fitting. Various statistical methods are available, but these cannot be described here.* For illustrative purposes, the simplest technique – curve-fitting by eye – will be discussed. Although lacking in sophistication, it has the advantage of being

**Sales Forecasting*, by A. Battersby. Penguin Books, 1971. o.p.

readily understandable, and can be applied quickly and easily. Since the best of forecasts is in any event only an approximation, the use of curve-fitting by eye, whilst less precise than much more complicated methods, will almost certainly be an enormous improvement over the most common alternative – that of ignoring the problem entirely.

Consider first Figure 6. In this case a line of best visual fit has been drawn through the output-per-man-hour figures for the past five years and extended (extrapolated) straight up for the next five years, giving a forecast of output in year 5 of 104.

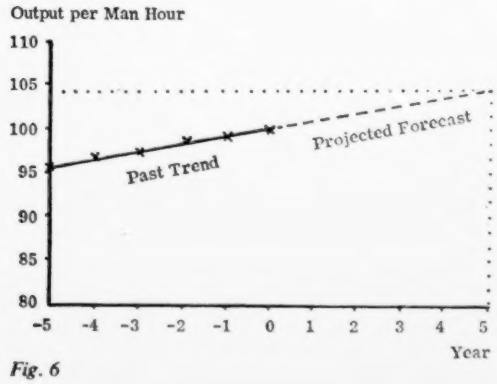


Fig. 6

Figure 7, however, presents a problem. It will be noticed that, after rising for several years, the trend output has remained almost constant for years –1 and 0. Does this represent a new trend or was the figure for year –1 exceptionally high? Hence, should we project along II, or along JJ? The two lines give quite different forecasts: in year 5, for example, II forecasts an output per man hour of 109, whilst JJ predicts only 103.

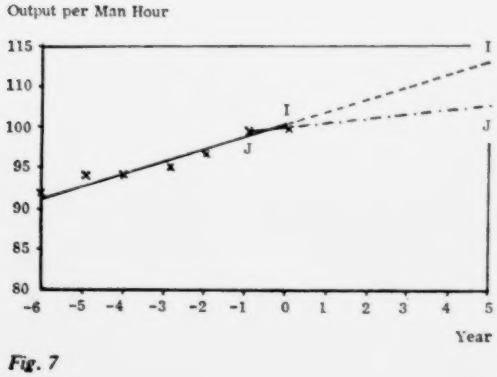


Fig. 7

This is where manpower planning ceases to become merely a statistical exercise. The planner must exercise his judgment, based on as wide a knowledge of the organisation as possible, to make forecasts. Did anything happen in years –1 and 0 which would indicate that JJ is in fact a new trend, or is it reasonable to assume that these were just shortlived variations from the previous trend (II)? If something did happen, can we take steps to restore the trend to its previous slope? (The fall may have been due, for example, to a period of deteriorating industrial relations, which have now been resolved.) Again, this illustrates that manpower planning is not a once-and-for-all activity; a further point, for year 1, when it becomes available, may well provide the answer.

Consider next Figure 8. Points for the previous five years have been plotted. By eye, a straight line, II, has been drawn so as to represent the

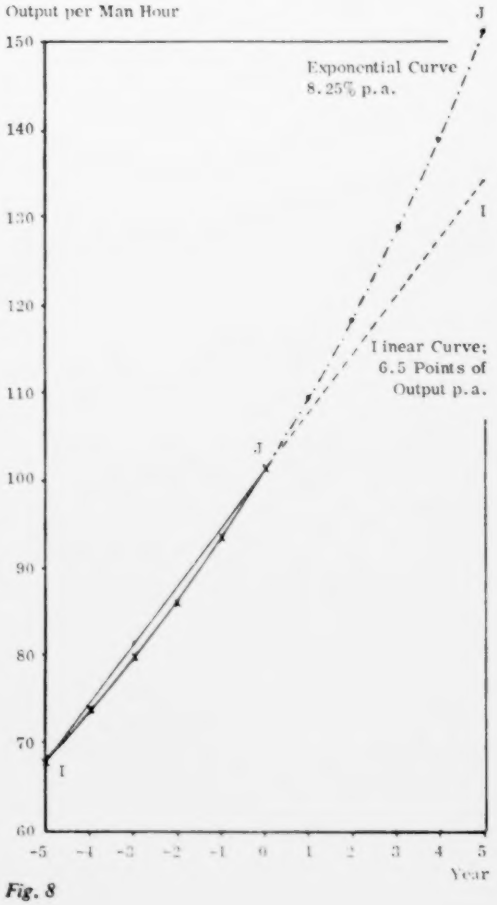


Fig. 8

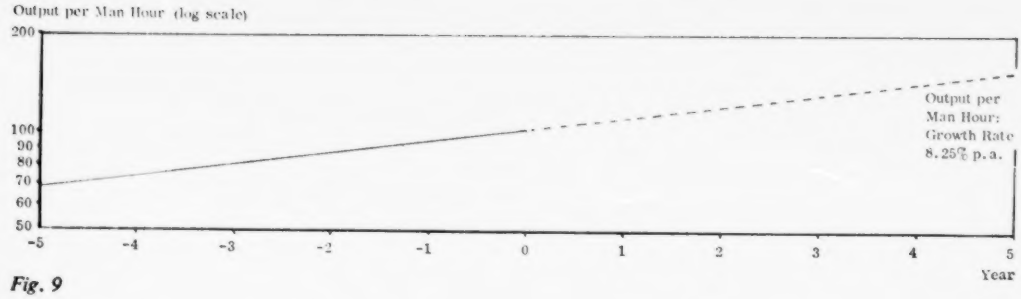


Fig. 9

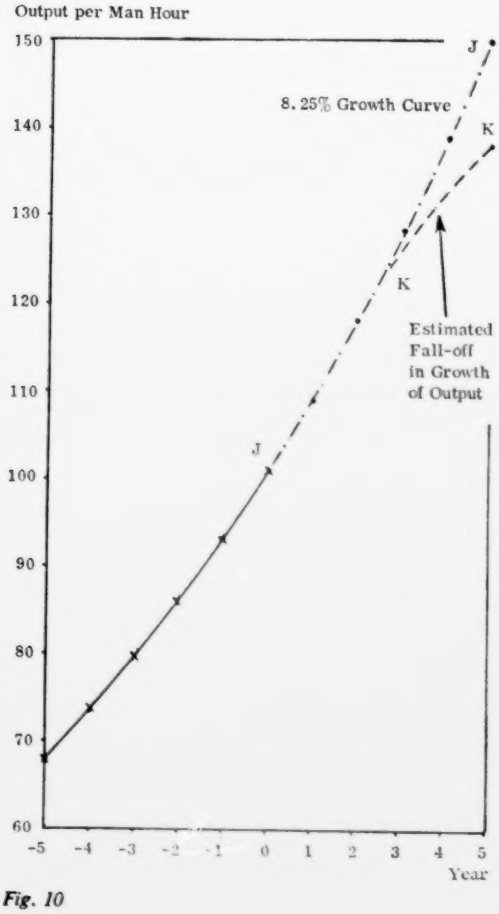


Fig. 10

estimated best fit, and this is extrapolated in the normal way to give an output-per-man-hour figure of 133 for year 5.

However, if these same values are plotted on log-natural paper (*Fig.* 9), a straight line is also obtained. This indicates that a smooth curve, known as an exponential curve, can be drawn through the original points. If this curve is extrapolated, JJ in Figure 8, then a much higher value (151) is obtained for year 5. This, in fact, represents a constant *percentage* increase in output per annum (in this case 8·25 per cent) whilst the straight line graph represents the case of a constant *magnitude* of increase (6·5 *points* of output per annum).

Many parameters are believed to grow in this way. The planner must, therefore, try to ascertain, in each case, whether he is dealing with an exponential relationship or whether the linear (straight line) development holds good. Alternatively, of course, some non-linear function other than an exponential one may be involved, which may be quite complex in nature. Even if past data demor strate exponential growth, one must examine the circumstances carefully to decide if this is likely to continue. For example, it may be decided that an output of 151 per man hour is just not physically possible, in which case some estimate of the amended forecast would have to be made, such as KK in Figure 10.

Let us now consider some examples (4, 5 and 6) of manpower planning which assume a time trend.

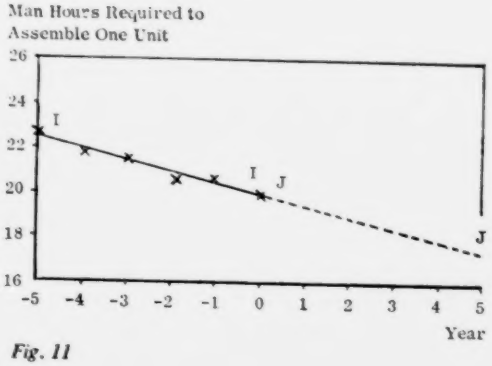


Fig. 11

Example 4

The same assembly department as in Example 1

Records over the previous five years show an improvement in productivity, that is, reduction in assembly time per unit, approximating to the straight line II in Figure 11. This is extrapolated over the forecast period (JJ) with a 40-hour week and 48-working-week year, through the forecast period.

Hence

	Year				
	1	2	3	4	5
Estimated production	2,400	3,000	4,000	5,000	6,500
Ratio Number of units assembled: man hours worked	1:19·5	1:19·0	1:18·5	1:18·0	1:17·5
Number of units per man/year	98	101	104	107	110
Assembly operators required	25	30	39	47	59

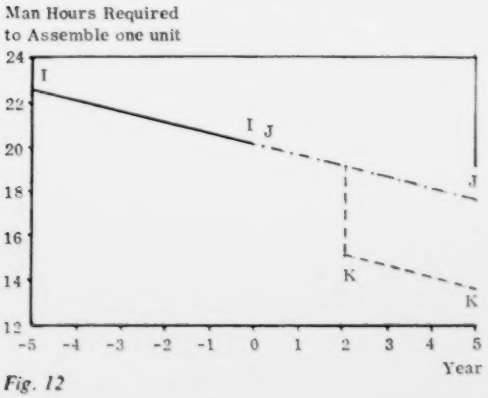


Fig. 12

Example 5

The same assembly department

Now, in addition to the predicted linear performance, a change in design of the product at the end of year 2 will cut assembly time initially to 15 man hours. It is estimated that time trend improvement will be approximately equal to that over the past five years, that is, KK (*Fig.* 12) is parallel to IIJJ.

At the same time, a 38-hour week is introduced.

Hence

	Year				
	1	2	3	4	5
Estimated production	2,400	3,000	4,000	5,000	6,500
Ratio Number of units assembled: man hours worked	1:19·5	1:19·0	1:14·5	1:14·0	1:13·5
Number of units per man/year	98	101	125	130	135
Assembly operators required	25	30	32	39	49

Productivity is, of course, only one of many variables that may show a continuous change over a period of time. A further example will show how other parameters may be considered in the same way when estimating manpower requirements.

Example 6

The same output situation as in Example 5

Now, however, an allowance for time lost through absenteeism and accidents is to be made. Past trends have been extrapolated to give estimated absenteeism rates over the forecast period (JJ, *Fig.* 13).

Hence

	Year				
	1	2	3	4	5
Estimated production	2,400	3,000	4,000	5,000	6,500
Assembly operators required (if zero absenteeism/accidents)	25	30	32	39	49
Estimated absenteeism/accidents (% hours lost)	5·2	5·8	6·5	7·3	8·0
Assembly operators required (accounting for absenteeism/accidents)	26	32	35	42	53

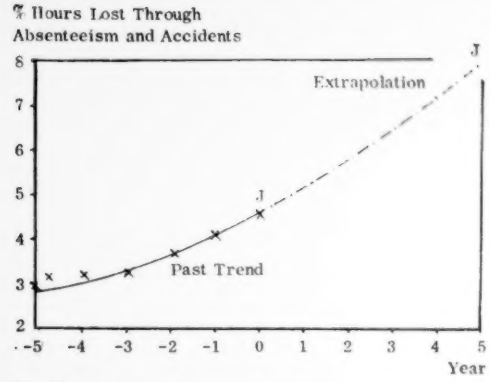


Fig. 13

5 The use of ratio trends

There are situations in which the use of time trends can provide very misleading forecasts of manpower requirements (Example 7).

Example 7

A manpower requirement forecast is to be made in the typing pool of a commercial organisation

Figure 14 shows a decreasing productivity trend, extrapolated (JJ) in the normal way.

Hence

	Year				
	1	2	3	4	5
Estimated output required (units)	2,320	2,320	2,320	2,320	2,320
Productivity (units per typist)	165	144	122	103	80
Number of typists required	14	16	19	23	29

This is clearly a most unhealthy situation, since, if correct, it represents a rapidly falling productivity. Does it, however, reflect the true picture? To investigate further, consider the number of typists actually employed and the total work output over the past five years.

	Year					
	−5	−4	−3	−2	−1	0
Number of typists	6	6	8	10	10	12
Work output	1,760	1,760	2,000	2,160	2,160	2,320

These data are plotted in Figure 15. It will be seen that the relationship is non-linear: the curve is gradually flattening off, representing the diminishing productivity. Here is the clue to the latter: productivity is a function, not of time, but of the number of typists. In fact, this case is an example of the well-known 'law of diminishing returns': as the number of typists increases, so pressure on space, facilities and supervision increases more than proportionally, and output per employee falls.

It should be clear from Figure 15 that in fact only 12 typists will be required for the next five years. The figures, based on a falsely assumed time trend, are hopelessly pessimistic.

This example shows, then, that reliance on time trends can give very misleading results. Ratio trends of the nature of Figure 15 should be used when there is a relationship between the ratio considered (for example, amount produced to number of employees) and one of the parameters

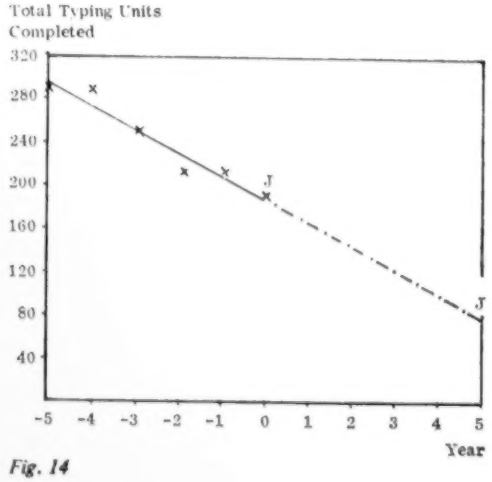


Fig. 14

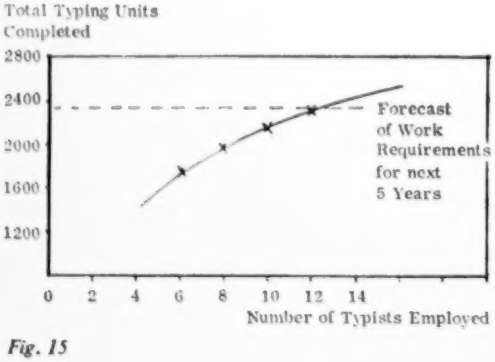


Fig. 15

of the ratio (for example, number of employees). There is no definitive list of ratios to examine in this way; it all depends on the situation being investigated. Such ratios may be of particular value when planning requirements for employees who do not contribute directly to output. Examples might include:

- supervisors: production workers
- administrative staff: production workers
- administrative staff: students (in a college)
- porters: guests (in a hotel)
- salesmen: volume of sales

The use of ratio trends* to forecast requirements assumes that the current relationship between the variables will apply throughout the forecast period. If changes take place (for example, new methods are introduced) then these will, of course, have to be allowed for. For example, if output per typist is increased because of, say, the introduction of electronic memory banks for typewriters, then a curve such as that in Figure 16 may be obtained.

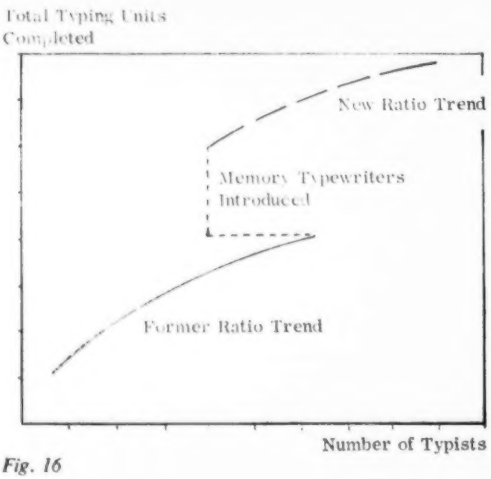


Fig. 16

Manpower supply

Having calculated manpower requirements, we must now consider the supply position. Basically, manpower supply is given by:

Manpower supply at end of period = manpower supply at beginning of period *minus* manpower outgoings during period *plus* manpower input during period.

1 Manpower outgoings

(*a*) *Labour turnover*

The traditional measurement of labour turnover is the percentage figure, defined as follows:

Labour turnover percentage = number of leavers in a given period × 100 ÷ establishment over same period.

Although useful as a quick indicator of the magnitude of the labour turnover problem, this index has limitations and is of no great significance in planning. The use of survival curves, however, can give a good prediction of probable turnover from a given group of new starters.

To establish the nature of survival, it is necessary to consider a particular *entry-cohort*. An entry-cohort is a certain batch of new entrants; it may be all new entrants in a given category, such as fitters, typists, waiters and managers, who commence within a given time (say January–December in a particular year) or on a given day (apprentice intake). Some times, it may be useful to subdivide these entrants to give different entry-cohorts based on sex, age group, nationality, travelling distance to work, etc.

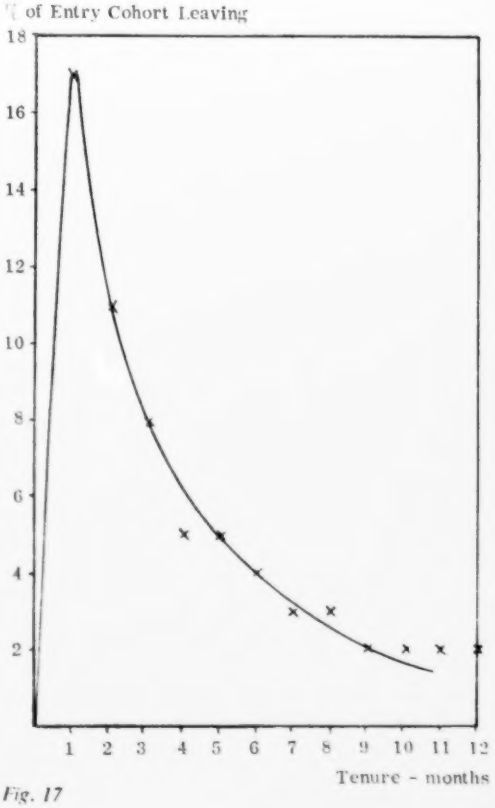


Fig. 17

Organization and Manpower Planning, by G. McBeath. Business Books, 3rd ed., 1974.

Table 6

Period of tenure (months)	1	2	3	4	5	6	7	8	9	10	11	12
Percentage of cohort leaving in that period	17	11	8	5	5	4	3	3	2	2	2	2
Cumulative percentage of leavers from cohort	17	28	36	41	46	50	53	56	58	60	62	64

Once an entry-cohort is established (see Table 6) individual records are kept of the length of stay. If a graph is drawn of the percentage of the entry-cohort which leave the job for which they were recruited, against time, it shows that the majority of a cohort remain a comparatively short time; turnover then falls off as time progresses (*Fig.* 17). The position of the peak varies in each case, although in general it will be found to correspond to a short length of service for unskilled employees, and a much longer one for managers.

How can this survival curve be used for manpower planning? Empirically, it has been found that if plotted on log-normal paper (paper on which the vertical scale is logarithmic and the horizontal scale probabilistic) these figures will usually lie approximately on a straight line (*Fig.* 18).

Here, cumulative data produce, as predicted, points approximating very closely to a straight line (II). Hence, extrapolation (JJ) predicts that:

By end of period (months)	18	24	36	48
Cumulative number of leavers will be	72	77	83	86
Percentage remaining will be	28	23	17	14

One of the great advantages of this method is that, since a straight line may be defined by two points, we need wait only until two time periods (months, weeks) have passed to get two readings and, hence, can quickly make a reasonably accurate forecast of probable survival.

(*b*) *Other outgoings*

These may include:

- retirements. These can be estimated by considering the age distribution. A percentage may be added

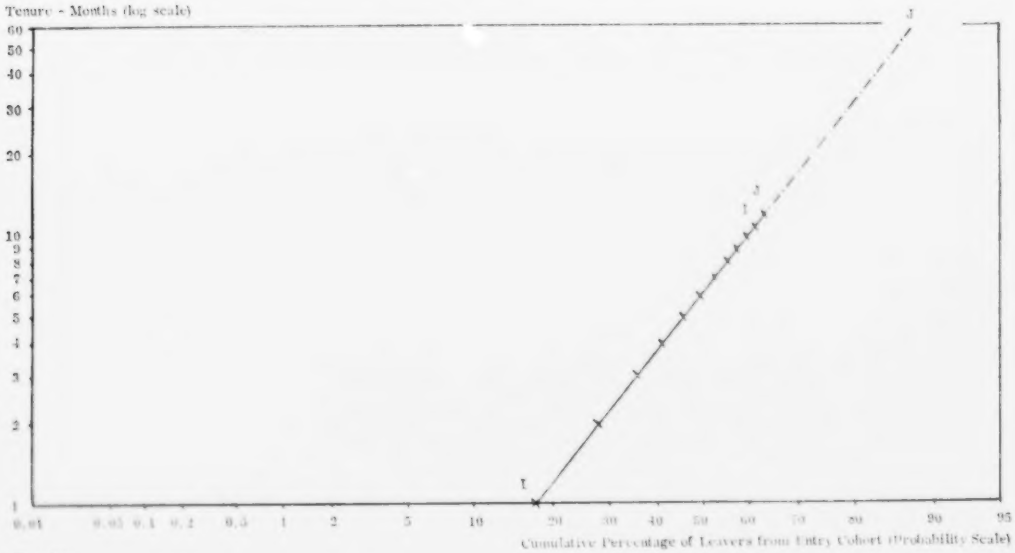


Fig. 18

to allow for early retirement on account of ill-health etc
- deaths
- dismissals
- promotions
- transfer
- marriage/pregnancies

2 Manpower inputs

Inputs may be divided into two main categories:

(*a*) *Internal.* These come from within the organisation itself.

Examples:

- from training schemes
- transfers from other departments
- promotions from other departments

(*b*) *External.* Recruitment from outside the organisation.

It now remains only to marry supply with demand. This is best illustrated by means of the following example.

Example 8

Assembly departments of a large electronics company

The labour turnover position is that of section 1(a) above. Corporate plans for the next five years have shown the need for the following:

Year	1	2	3	4	5
Female assembly operators required at end of year	200	250	300	400	400

Productivity trends etc have been allowed for. Table 7 shows the matching of demand with supply.

Table 7

	Year 1	2	3	4	5
1. Numbers required at start of year	200	200	250	300	400
2. Extra numbers required during year	—	50	50	100	—
3. Numbers required at end of year	200	250	300	400	400
4. Numbers available at start of year (equals 3 for year before)	200	200	250	300	400
5. Labour turnover of existing staff (see note 1)	20	40	60	100	160
6. Retirements	8	15	15	10	20
7. Other losses : transfer/promotion (2½% p.a.)	5	5	6	7	10
deaths (2½% p.a.)	5	5	6	8	10
marriage/pregnancy (5% p.a.)	10	10	12	15	20
8. Total losses (5 + 6 + 7)	48	75	99	140	220
9. Shortfall (2 + 8)	48	125	149	240	220
10. Net numbers to be recruited (equals 9)	48	125	149	240	220
11. Extra recruitment to allow for labour turnover of staff recruited during year (see note 2)	22	57	68	110	100
12. Gross recruitment (10 + 11)	70	182	217	350	320

Notes to Table 7

1. *Labour turnover of existing staff*

The labour turnover of existing staff is dependent on the numbers and length of service of staff in employment at the end of the previous time period. It can be calculated by applying the survival function to these various cohorts (similar to point 2 below).

2. *Allowance for labour turnover of staff recruited during the year*

The calculation of line 11, although simple, requires some explanation.

This line represents the additional recruitment necessary to make up for leavers who started work within the year.

In this example, the survival figures of section 1(a) (page 23) are used. For convenience, these are repeated below.

Top row: Period of tenure (months)

1	2	3	4	5	6	7	8	9	10	11	12
17	28	36	41	46	50	53	56	58	60	62	64

Bottom row:
Cumulative percentage of leavers from cohort

Consider year 1. Net recruitment (Table 7, row 9 = row 8) is 48. Assume that these are recruited evenly, that is, at four per month (this need not be so, of course). Tables 7(i–v) are now drawn up simultaneously, using Tables 7 (i–iv) to feed data into Table 7 (v).

Take first of all, the recruitment in month 1 – Table 7 (i).

From this Table 7 (i), we note the months during which 'one whole person' from the entry-cohort left. These are clearly months 2 and 6. That is, labour turnover from month 1 cohort is one in month 2, one in month 6 and none in all the other months. These figures can be entered against month 1 in row 3 of Table 7 (v).

Consider in the same way the entry-cohort from month 2 – Table 7 (ii).

Table 7(i)

Month of year	1	2	3	4	5	6	7	8	9	10	11	12
Month of service	1	2	3	4	5	6	7	8	9	10	11	12
Cumulative percentage of leavers from entry-cohort ..	17	28	36	41	46	50	53	56	58	60	62	64
Size of cohort = 4												
Cumulative number of leavers from entry-cohort ..	0·68	**1·12**	1·44	1·64	1·84	**2·00**	2·12	2·24	2·32	2·40	2·48	2·56

Table 7(ii)

Month of year	1	2	3	4	5	6	7	8	9	10	11	12
Month of service	–	1	2	3	4	5	6	7	8	9	10	11
Cumulative percentage of leavers from entry-cohort ..	–	17	28	36	41	46	50	53	56	58	60	62
Size of entry-cohort = 4												
Cumulative number of leavers from entry-cohort ..	–	0·68	**1·12**	1·44	1·64	1·84	**2·00**	2·12	2·24	2·32	2·48	–

Table 7(iii)

Month of year	1	2	3	4	5	6	7	8	9	10	11	12
Month of service	–	–	1	2	3	4	5	6	7	8	9	10
Cumulative percentage of leavers from entry-cohort ..	–	–	17	28	36	41	46	50	52	56	58	60
Size of entry-cohort = 5												
Cumulative number of leavers from entry-cohort ..	–	–	0·85	**1·40**	1·80	**2·05**	2·30	2·50	2·65	2·80	2·90	**3·00**

Thus, Table 7 (ii) shows that labour turnover from month 2 entry-cohort is one in month 3 of the year (that is, month 2 of service) and one in month 7 of the year. This can now be entered in the second sub-row of row 3 in Table 7 (v).

It is very important to understand that Table 7 (v) is built up gradually, and that in any one month, row 6 (which equals row 2 plus row 5) *must* be calculated before the entries in row 3 can be made. For example, consider month 3. Row 5 indicates that, in addition to the standard four new recruits, we must also take on one extra person to replace the one who left in the previous month (month 2, row 4). Thus, the total entry-cohort for month 3 is 4 + 1 = 5 (row 6). Table 7 (iii) then shows the labour turnover of this cohort.

Hence, labour turnover from month 3 entry-cohort is one in month 4 of the year, one in month 6 and one in month 12. These are entered in 'month 3' sub-row of row 3 in Table 7 (v).

The remainder of Table 7 (v) is completed in the same way. As a final example, Table 7 (iv) shows the calculation of labour turnover for those commencing in month 7; note that the size of the entry-cohort is seven (that is, the 'normal' four plus three to replace leavers in month 6).

Thus, it will be seen that, from month 7 entry-cohort, one leaves in month 7 of the year, one in month 9 and one in month 11. It is also very important to note that one leaves in month 15 – that is, month 3, year 2. Entry-cohorts from year 1 continue into year 2 and this must be taken into account when calculating labour turnover for that year (viz, Table 7, year 2, row 11).

Finally, from Table 7 (v), the sum of row 5 (= 22) gives the extra recruitment necessary to take into account starters who leave during the year. This is entered in Table 7, row 11.

Table 7(iv)

Month of year	1 to 6	7	8	9	10	11	12	13	14	15
Month of service		1	2	3	4	5	6	7	8	9
Cumulative percentage of leavers from entry-cohort		17	28	36	41	46	50	53	56	58
Size of entry-cohort = 7										
Cumulative number of leavers from entry-cohort		**1·19**	1·96	**2·52**	2·87	**3·22**	3·50	3·71	3·92	**4·06**

Table 7(v)

1. Month	1	2	3	4	5	6	7	8	9	10	11	12
2. Additional manpower required	4	4	4	4	4	4	4	4	4	4	4	4
3. Labour turnover from entry-cohort of month 1	–	1	–	–	–	1	–	–	–	–	–	–
2	–	–	1	–	–	–	1	–	–	–	–	–
3	–	–	–	1	–	1	–	–	–	–	–	1
4	–	–	–	–	1	–	1	–	–	–	–	–
5	–	–	–	–	–	1	–	1	–	–	–	–
6	–	–	–	–	–	–	1	–	1	–	–	–
7	–	–	–	–	–	–	1	–	1	–	1	–
8	–	–	–	–	–	–	–	1	1	–	1	–
9	–	–	–	–	–	–	–	–	1	–	1	–
10	–	–	–	–	–	–	–	–	–	1	1	–
11	–	–	–	–	–	–	–	–	–	–	–	1
12	–	–	–	–	–	–	–	–	–	–	–	1
4. Total losses in month	–	1	1	1	1	3	4	2	4	1	4	3
5. Extra recruitment to make up for manpower lost in previous month (= row 4 for previous month)	–	–	1	1	1	1	3	4	2	4	1	4
	Total of row 5 = 22 (enter in row 11 of Table 7)											
6. Total recruitment for month = row 2 + row 5	4	4	5	5	5	5	7	8	6	8	5	8

5. The Process of Identifying Training Needs

WE CAN NOW CONSIDER THE OVERALL PROCESS OF 'identification'. The term is possibly misleading, since the mere identification of a need is virtually useless in itself: what is wanted is *action* to change the situation.

A management responsibility

Training may be defined as one way of achieving specified behavioural changes in a required direction. This direction is related to organisational objectives, and the people whose behaviour is to be changed work within the organisation. Therefore, the responsibility for training lies with the person(s) responsible for organisational objectives and for the people employed. Clearly these latter responsibilities lie, not with the training specialist, but with all levels of management.

Whilst there are few training specialists who would disagree with this argument, there are many managers who do not believe training to be their responsibility, or, rather, have never considered it as such; that is to say, although they have not consciously abrogated their responsibility, they have never thought about it in the way discussed in the previous paragraph – it has never occurred to them that training should be an integral part of their job.

One of the first problems, therefore, that the training specialist encounters is that of persuading management that, basically, training is their responsibility, and that the training officer is there only to advise and give specialist assistance.

Models of the process of identifying training needs

Model 1

A very common situation is one where a training specialist 'leaps in' somewhere within the organisation and sets about identifying needs. In such cases, management will often be either passive or actively hostile. Figure 19 shows the process.

The diagram is fairly self-explanatory. The first step involves looking for the symptoms and indicators of a problem; following this, the real problem has to be identified. Clearly, it is very desirable that management be involved as much as possible, right from the start – hence the dotted squares which indicate that, if possible, management will be taking part both in these steps and in the consideration of possible solutions, since these

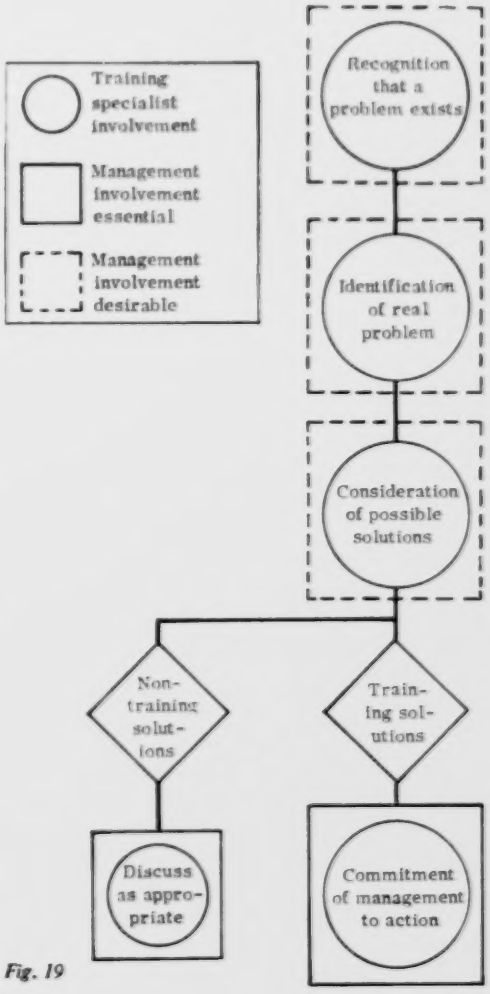


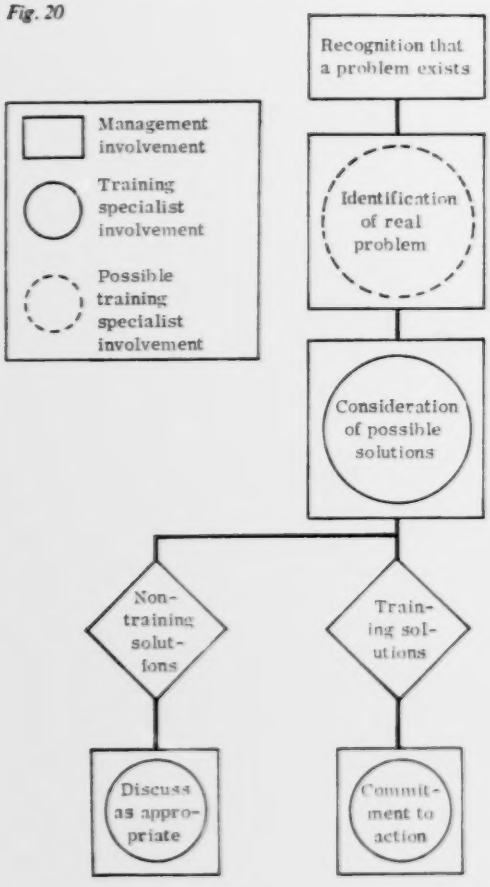
Fig. 19

may be very dependent on the resources available.

When the training specialist comes to consider solutions, he will very often recognise that, besides training effort, many non-training approaches are involved. Clearly he cannot treat these as being none of his business, but must discuss them with management and everyone concerned (other specialists, trades unions, etc).

Theoretically, of course, it is impossible to identify needs without management involvement, since needs must be related to objectives – objectives which are set by management. Unfortunately, it is by no means uncommon to find a situation in which there are no objectives set. Again, in the circumstances depicted in this first model, a hostile management may refuse to divulge any meaningful objectives to the training specialist, whose first task might, therefore, be to overcome this particular problem. One might in such cases be excused for saying that training is, in fact, primarily the training officer's responsibility, insofar as, paradoxically, his main problem is to persuade management that in reality training is their responsibility. There is no point in suggesting solutions unless they are to be implemented and, thus, the last step in the process is to obtain management commitment.

Fig. 20



Model 2

Assuming that a healthier state of affairs obtains, management will recognise that a problem exists ('feels a hurt', as it is often expressively put) and, realising the possible value of training, will call in the training specialist to assist (*Fig.* 20).

The nature of the training specialist's assistance may take one of two major forms. The first, which may be called *advising*, is basically that of Figure 20, in which, as the title suggests, the specialist advises management as to the nature of the problems and solutions. This could be said to be a classical 'consultancy' approach.

On the other hand, *counselling* may be said to be a more meaningful way of providing assistance (*Fig.* 21). In this case, the specialist, rather than solving the manager's problem, guides and assists him so that he can solve it himself. This requires a very different approach, and the relationship between the training officer and the manager will be very different. Although almost certainly more difficult in the short term, there is no doubt that, in the long term, counselling will make a much more significant contribution than advising possibly can both to the manager's personal development and to organisational health. (At the same time it will in all probability have as great an effect on the psychological growth of the training specialist himself.)

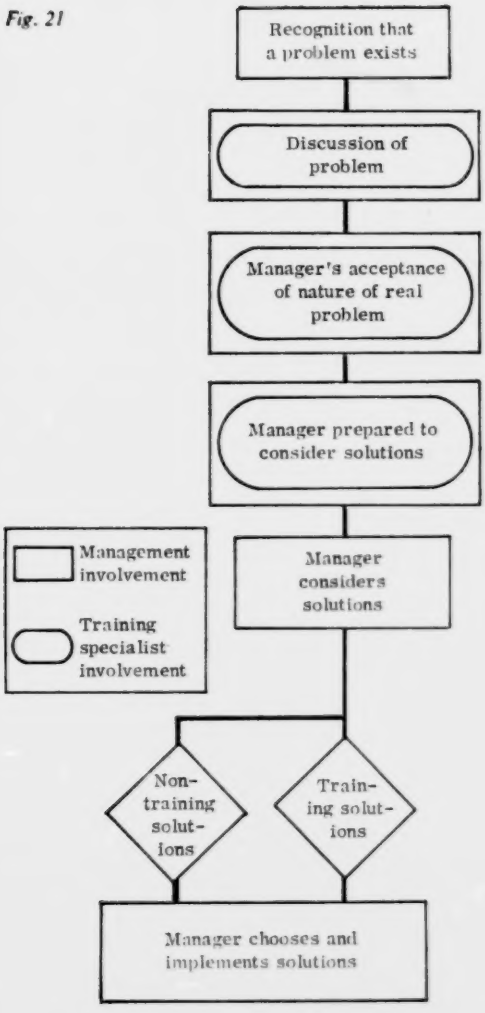
Model 3

The preceding models have been concerned with both present and future needs, particularly the former. In contrast, the third model (*Fig.* 22) is associated solely with future needs. In this situation, some planned change is to be undertaken, and management and the training specialist work together from the very outset.

These changes may be planned at two levels. At the lower of these (B, *Fig.* 22), new objectives are being set. It is highly desirable that the training specialist be involved at this stage, for the new objectives will possibly give rise to training needs.

Furthermore, a consideration of training implications should be made when the objectives are actually being set. A 'better' objective may be possible if improvements can be made through training; conversely, a desired objective may be

Fig. 21



unattainable, on account of an insurmountable training problem, given available resources and constraints. (Alternatively, the objective may be attainable, but only at unacceptable training cost.)

At the higher, or strategic, level we are concerned with decisions 'pertaining to the relation between the organisation and its environment'*. In particular, strategic problems are those raised by the question 'What industry are we in, and what industry should we be in?' The answer depends not only on such external factors as market changes, competition, technological changes and government actions, but also on a variety of internal items, including plant, finance, networks and, of course, the strengths, weaknesses and potential of employees at all levels. It is here that any strategic decision must take account of training implications.

It is doubtful, however, except in very large organisations with a well-established training function that has proved its worth – its worth in contributing to objectives rather than in grant-maximisation – that the training specialist will be consulted in the strategic decision-making process. However, top management should be aware of the relevance of training to the problem, and hence the dotted circle at level A in Figure 22.

Cases 6 and 7 in chapter 3, 'Future Training Needs', pp 14 & 15, give examples of the training implications of strategic decisions.

Corporate Strategy, by H. I. Ansoff. Penguin Books, 1975.

Not a mechanistic process

It should by now be clear that the identification of training needs may take place in a wide variety of situations, depending on such factors as:

- the training specialist's role as perceived by management
- his role as perceived by himself
- managers' perceptions of their own responsibilities for training
- the training specialist's relationships (formal and informal) with managers
- his competence and standing within the organisation
- his perception of his competence
- the 'state-of-play' of the organisation.

Further, owing to the multiple-causatory nature of problems which may give rise to training needs, attempts to identify the latter must take account of any relevant information in any of the many sub-systems within the organisation. For these reasons, it is not possible to describe a mechanistic procedure for 'identifying training needs'. Nor is it ever possible to list the information required. All that can be said is that a manager or a training specialist who has a sound grasp of the concept of 'training need' must then apply such social and analytical skills as he may possess, working within constraints and boundaries which will arise as a result of such factors as those listed above.

There is no 'right way' of obtaining the information required, although there are four main approaches, none of which is mutually exclusive.

(i) *Records*

Hopefully, much factual information may be obtained from existing records, for example, labour

turnover, age distribution, production figures, financial data. In this category also may be included records associated with any formal appraisal system in operation.

(ii) *Interviews*

Even in an organisation which has a highly-developed system of records, much information (about, for example, problems encountered, reasons for these problems, future changes) must be obtained by means of interviews.

Good interviewing is extremely difficult, and is beyond the scope of this booklet. It is possibly one of the most underrated skills, since we all like to think we are good interviewers (although there is ample evidence to show that this is often far from true). As with all social skills, it is extremely difficult to learn interviewing technique by reading, although this can be a useful guide*.

It must always be remembered when interviewing that one is obtaining *opinions* rather than *facts*. Much of the interviewer's skill is in interpreting these opinions (which often conflict with other people's) and drawing valid conclusions from them. It is clearly important to get the opinions of a range of people, and if possible one should, therefore, interview not only managers, but also supervisors, operators, clerical staff and, particularly in service industries, customers.

Since one is, in general, trying to identify weaknesses within the organisation, it is especially important to establish a rapport with the person being interviewed, and to respect any confidences.

(iii) *Questionnaires*

By a questionnaire is meant not a checklist used at an interview, but a set of questions given to respondents to answer privately and return. Although they have the advantage of enabling a large number of respondents to be surveyed in a comparatively short space of time, questionnaires tend to be constricting and are extremely difficult to design properly (it is very easy, however, to be misled into believing that a good questionnaire has been designed). Moreover, problems of ambiguity and of 'yes'/'but'/'sometimes'/'it depends' responses limit the use of such instruments when trying to identify training needs.

(iv) *Direct observation*

Many problems, particularly at operator level, may become apparent simply by careful observation, although it is important not to be misled by placing too much weight on something that may be unrepresentative of the situation as a whole.

Presenting the information

The training specialist will usually be faced with the problem of presenting his findings to management – sometimes to a management that is, at best, sceptical. This will normally be done by means

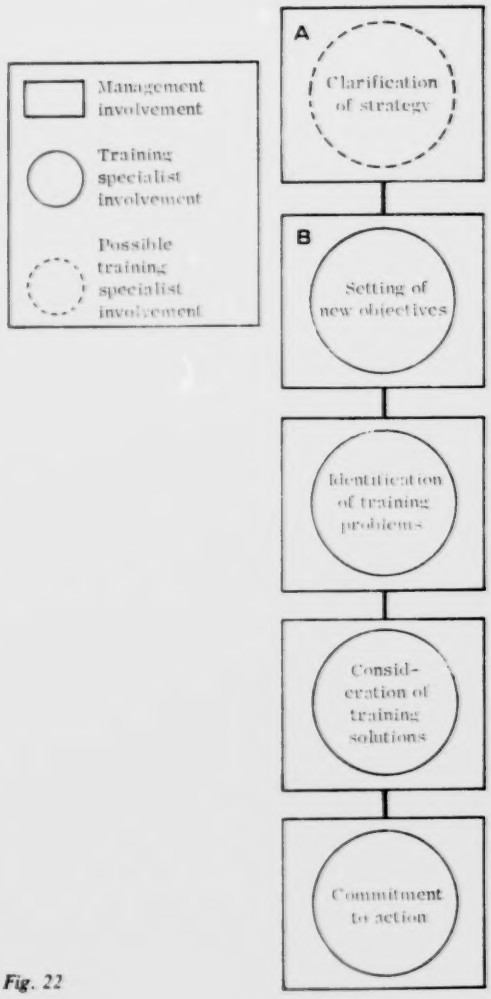


Fig. 22

Interviewing, its Forms and Functions, by S. A. Richardson. Basic Books, 1965.

Personnel Interviewing, Theory and Practice, by F. M. Lopez. McGraw-Hill, 2nd ed., 1975.

Guide to Assessment of Training Needs, by D. F. Megginson. Local Government Training Board, 1970.

Interviewing in Twenty-Six Steps, by John S. Gough. BACIE, 10th impression, 1978.

Table 8 Extract from Action-steps Statement

Ref.	*Action*	*Evidence of need*	*Benefits*	*Planning work involved*	*Target date*
1	Five day instructor training for restaurant supervisor	1 To implement (3) below	1 Success of (3) below 2 Recognition by supervisor of value of training and associated role	Group training officer to arrange place on course	Course to be completed within two months
2	Selection and human relations training for management	1 Problems of staff relations Poor selection of staff	1 Better morale and leadership in action 2 Better selection leading to recruitment of suitable staff	Group training officer to choose suitable external courses in discussion with management	Three months hence
3	Continuous and off-the-job training of waitresses	1 Poor service in restaurant 2 Poor relations between restaurant and kitchen 3 Menu and prices not fully understood by waitresses	1 Better service, customer satisfaction and profits 2 Smoother working because of better relationship between restaurant and kitchen	Group training officer to carry out job analysis and plan programme, with assistance from restaurant supervisor	Programme to commence within four months
	etc	etc	etc	etc	etc

of a report. The nature of this report will vary greatly, depending on such factors as the situation in which the training specialist finds himself and the manager(s) who will read it.

Although the overall objective of the report is, of course, to obtain *action*, its immediate purpose may vary:

1 The training officer 'leaps in' (Model 1, p 27)

If the reader of the report is sceptical, then its main purpose will be one of *persuasion*; to explain the nature of the problem and the reasons why the suggested action will help solve it. Clearly, a careful, logical layout, relating symptoms to problems, problems to cause, cause to solutions, solutions to action, and action to benefits, is required. On the other hand, if it is already accepted that training can help, then there is less need to explain causal relationships in great detail, although obviously these cannot be ignored entirely. The main emphasis will be on problem-action-benefit, the objective being to *inform* rather than to persuade.

2 The training specialist is called in to assist (Model 2, p 28)

The report will act in an advisory capacity, its purpose and approach similar to that in **1** – to inform the reader. If a counselling approach has been taken, however, the report may be very different. Indeed, a report as such will hardly be necessary since, if counselling has been done properly, the manager will have come to his own conclusions, and the steps of problem-cause-solution will necessarily have been fully understood by him. Insofar as a report is required, therefore, its purpose is neither to persuade nor to inform, but to *reinforce* and to act as a checklist for action. As such, it may be no more than a summary of action steps with target dates, although the manager may have to provide much more information in order to persuade or inform his own superiors.

3 Training specialist and management working together in planning for change (Model 3, p 28)

Clearly, the main purpose of this report will be to inform and/or persuade other levels of management throughout the organisation.

Table 8 shows an example of an action-steps statement. The essential elements are the columns

headed 'Action', 'Planning work involved' and 'Target date'. In this particular instance the 'Evidence of need' and 'Benefits' columns are included as a summary in order to help persuade the reader.

Determining priorities

In any situation, resources (money, people, expertise, equipment, accommodation and, of course, time) will be limited, and therefore it will not always be possible to implement all the solutions to problems that have been identified. It therefore becomes necessary to consider the choice of priorities. Priority here is used in the sense of that which will be done first, rather than that which is most essential, since the two are not necessarily the same.

For example, in Table 8 the instructor training action is first in the list, since reference 3, waitress training, is dependent on it. The management training item is second, since it is, in fact, more critical than the waitress training programme.

A critical approach to organisational effectiveness is clearly one factor to be considered when determining priorities. Others might include:

- cost-benefit – the financial return on the training investment
- relevance to future changes
- urgency in terms of how immediate the problem is
- resource availability – if resources have to be obtained, then this will constitute a time factor
- planning and preparation time
- opportunity cost – if a particular programme is introduced, what alternatives will have to be foregone?
- tactical considerations – quick success, even if not especially valuable in itself, might open the door for the removal of constraints (for example, management scepticism) and thus enable more significant programmes to be introduced.

An on-going process

It would be a great mistake to believe identification of needs to be a once-and-for-all activity. Problems are constantly occurring, and the implementation of one set of solutions must be validated continuously. If training objectives are not being met, then new needs are, in effect, being highlighted, and in this sense validation becomes identification of needs. The ten-step wheel has come full circle.

6. Approaches to Training Needs

Let us examine, in broad outline, the following questions: What are training needs? Whose job is it to identify needs? What techniques are available for identifying needs?

What are training needs?

I indicated earlier* that 'a training need exists when the application of systematic training will serve to overcome a particular weakness'. This is a logical approach which is outlined in Appendix 3 and also in my booklet on job analysis† (see Systematic Training in Ten Steps). I believe that this systematic approach has much to offer, but I realise that it is not the *only* approach which trainers can – and do – adopt. I propose, therefore, to examine some of these other approaches** and the meaning that 'training needs' has in the context of each one.

As I see it, the underlying goal of the systematic trainer is to improve organisational effectiveness by training – that is, by improving the knowledge, skills and attitudes of the people who work within the organisation. The process of identifying needs involves scanning the organisation to highlight areas where training would help and then looking at those areas in more detail, typically by job analysis.

It is the experience of myself and my colleagues over the past few years that systematic trainers in practice (though not of logical necessity) *tend* to restrict their activities to those problems which highlight a lack of skills and knowledge that can be catered for by a job analysis approach. I believe that the reason for this is that when identifying training needs trainers are (perhaps subconsciously) limiting their diagnosis by looking only for those problems for which they possess the tools and techniques to provide a solution.

Now it so happens that, historically, systematic training has evolved from a combination of engineering and instructional technology. As a result, the systematic trainer's range of techniques is well suited to attacking problems through job analysis, identifying, analysing and instructing in a number of knowledge and skill areas, particularly physical skills and knowledge that may be termed 'information'.

It follows therefore that the logical approach is particularly well suited to the training of operators, clerical workers and craftsmen. However, when we come to management training we find that these methods, whilst useful to a certain extent, cannot cope with some of the issues which such training must attempt to resolve.

What are these issues? An interesting exercise is to ask a group of managers, 'What are the main things that seem to go wrong, that cause problems, in organisations?' At this point the reader may like to answer this question for him/herself; a typical list of answers is given below:

- lack of communication
- interpersonal conflict
- 'us and them' quarrels
- personality clashes
- lack of information
- 'other people can't, or won't, see our point of view'
- one group mistrusting another group
- 'no one seems to care how we feel about things'
- 'no justice in the way people are treated'

To me, the striking thing about this list is that hardly any of these problems can be tackled by the conventional skill and knowledge techniques available to most systematic trainers.

The organisation development approach

Just as the activities involved in the systematic approach tend to have their origins in the backgrounds of its exponents, so it is with the

*Page 4.

†q.v. page 4.

**First identified and analysed by a colleague, David Megginson, and reported in the Local Government Training Board's unpublished research report, *The Training Function in Local Government.*

organisation development (OD) approach. The background in this case is one of social psychology, with special emphasis on the dynamics of working groups. In consequence, much of what is referred to as organisation development is concerned with the application of behavioural science techniques – especially social and group psychology – to the solving of organisational problems.

Table 9 shows some of the issues to which the OD-orientated trainer addresses himself. Clearly, in this case, 'identifying training needs' refers to the process of discovering whether or not these issues are in fact causing problems within the organisation. (Further details of the various techniques which may be used for identifying these needs are given later.)

The welfare approach

Trainers who follow the welfare approach tend not to be particularly interested in organisational or group effectiveness. Instead, their main concern is with the welfare or happiness of the individual. Consequently, they see training in terms of enabling the individual to gain qualifications in order to obtain extra pay or to improve his or her prospects of promotion.

This approach is not very common in industry, but is adopted by many trainers in local and central government. For them, a training need is seen as a situation in which somebody wants to go on a course in order to obtain a further qualification.

In recent years there has also been a growing emphasis on helping individuals with life and career planning. Although, logically, this would seem to fit into the welfare approach, in point of fact the concern has grown from the beliefs and activities of OD practitioners rather than from those of the welfare trainers.

The administrative approach

In our experience, many trainers adopt what we call an administrative approach; that is, they see the whole purpose of training as administering training records, completing industry training board returns and the like.

Obviously, it is important for any trainer to have administrative skills and functions. However, in my opinion, this should be seen as

Table 9 Organisation Development Approach

Level	*Typical issues involved in identifying needs*	*Types of technique available for identifying needs**
Extra-organisational	How is the organisation seen by external bodies such as consumers, clients, local or national community, government?	Questionnaires; instruments; interviews; organisation mirroring
Organisation-wide	What are the norms, expectations, of employees' behaviour? How do people feel about the organisation, about top management, about the products, processes and policies of the organisation? What is the ideology, the general management style? How is power distributed and used? Is the climate democratic or autocratic, co-operative or competitive?	Questionnaires; instruments; interviews
Intergroup	Is there evidence of intergroup conflicts, 'us-and-them' syndrome, for example, between management and unions, specialists and line, administrators and professionals? How do various groups see each other? Do they help or hinder each others' efforts?	Questionnaires, instruments, interviews, followed by data-feedback. Confrontation meetings.
Group	How well does the group function as a team? What is the leadership style in the group? Does it make effective use of its resources? What is the quality of the relationships between the group members?	Questionnaires, instruments, interviews, followed by data-feedback. Teamwork development meetings.
Pairs	Is there evidence of interpersonal conflict, for example between superior and subordinate, between two group members, or between specific individuals in different parts of the organisation who have to work together, such as production manager and marketing manager?	Interviews; third party intervention

*See also Appendix 2 which gives more information on these techniques.

Table 10 Model of Levels of Learning

Category or level of learning	*Description of outcome of learning process*	*Main feature of teaching/learning strategy*
A	*Memory* or *habit*. The ability to recall, repeat and describe facts, definitions, rules, principles, skills, behaviours, tasks, when asked to do so. The learner can make the correct response when asked to do so, quickly and without thinking.	(*a*) Rote, drill, repetition *or* (*b*) Carefully structured activities to ensure that the learner makes the correct responses, which are reinforced by appropriate reward
B	*Understanding* or *comprehension*. The ability to explain concepts, ideas, principles, techniques, rules, skills, behaviours, when asked to do so, and to use them when in problem situations for which they form the established, prescribed correct approach.	Careful explanation and demonstration by trainer, and grasp by the learner, of the principles, concepts, and so on
B1	*Insight*. Somewhere between B and C.	Guided problem solving by learner
C	*Transfer* or *significant learning*. The same abilities as in B, but with the added ability to weigh up new problem situations, to select appropriate concepts, techniques, and so on from all those that have previously been learned; to modify and adapt these if necessary; to derive new concepts, ideas, techniques, and so on if those previously learned are inadequate for this new, unique problem situation.	Open problem solving by learner, who sets his own goals by identifying and analysing his problem situation and who then identifies, generates and uses the resources necessary to solve the problem

a means to an end and when, as in the administrative approach, successful administration is seen as the end in itself, then this becomes a fairly futile exercise. Such trainers do not really recognise the concept of need except, perhaps, when they identify a lack in a record system or a need for a fresh approach to filing.

The political approach

This final approach is another example of where a means has become an end. The means in this case is power and influence.

Every trainer knows only too well that the success of his or her efforts depends in part on the amount of credibility, influence and power that he or she has within the organisation. Therefore, to be successful, he or she must take deliberate steps to achieve these goals. However, self aggrandisement for its own sake has to be avoided; in this context 'training need' comes to mean 'where is there an opportunity to gain further influence, power and fame for myself?' Nevertheless, I am aware, or perhaps I am hopeful, that we all do this to some extent, otherwise you would not be reading this.

A summary of these approaches to training is given in Appendix 1, which is based on a model which first defines the values and goals underlying the approach and then the activities emphasised in each of the four phases, that is, diagnosis, action planning, implementation and evaluation. The appendix is based on the work of David Megginson, to whom I have already referred.

Whose job is it to identify needs?

I have already outlined three models of the process of identifying needs*, which consider ways in which the trainer can either identify the needs himself or can help the manager to identify the needs of his department. Recently, another alternative has been gaining support, as a result partly of the growing influence of the OD approach. This involves the trainee or learner in identifying his own needs. Many trainers seem to find this idea somewhat preposterous. 'How can the learner know what he needs?' is a very common reaction.

Nonetheless, this learner-centred approach, as it is sometimes called, is becoming more common. The learners are encouraged to identify and highlight their own issues and needs and then, if possible, generate and use

*q.v. pp 27–29.

their own resources for meeting these needs. The trainer's role is to help them in these processes rather than to do it for them as in the more conventional teaching situation.

A new set of needs – 'meta goals'

One of the reasons why the learner-centred approach is gaining ground is because it is felt that only in this way will the training be directly relevant and meaningful to the trainee. Furthermore, his or her commitment and motivation should be greater as a result of this perceived relevance.

There is another reason, however, which is related to the nature of the learning which some of us believe is achieved by using this approach. This belief is founded upon a model of levels of learning, as outlined in Table 10.

According to this model, the teaching/learning strategies which are most commonly used (the trainer setting the goals and then carefully structuring the learning to meet them) lead to the learner remaining dependent on the trainer to tell him what to do and how to do it. Thus, when he is faced, as most of us are, with new problem situations for which he hasn't been given the predetermined 'right' answer, he is unable to cope.

However, he can learn to cope with such situations if his training involves him in becoming independent of the trainer. Therefore, he must practise identifying his issues, weighing up situations, generating and using resources, obtaining help from and giving it to his colleagues, and so on.

Using this approach, the trainee, as well as learning about the content or subject matter of the programme, also achieves 'meta goals' which help him to transfer the learning, to apply it in new situations, and to learn from his experience.

The exact nature of these meta goals is the subject of on-going research* and much remains to be learned about them. However, examples of meta goals which can be achieved in this way include the ability to:

- identify and use the resources in a situation
- identify, cope with, and turn to advantage the constraints in a situation
- obtain co-operation from colleagues in solving problems
- cope with uncertainty, ambiguity and the fact that there is no right answer
- restructure one's experience and hence learn from it
- be sensitive to one's feelings in a situation and to the effect these are having on one's behaviour

*For example, by myself and by John Burgoyne of the Management Teacher Development Unit at the University of Lancaster.

Table 11

Knowledge-based learning	*Experiential learning*
1. Concerned with transmission of existing facts and procedures, that is, KNOWLEDGE (PAST ORIENTATED).	1. Concerned with the problems of what is and what will be (PRESENT AND FUTURE ORIENTATED)
2. Trainer organises, sets the objectives, sequences the material in logical order – as it seems to him.	2. Initiated by the learner to meet some need learner sets his own objectives and learns whatever seems most important or useful – trainer facilitates the need, identification, objective setting and learning process.
3. Trainer is the guardian of all learning – the initiated one. He dispenses the learning, dispels the mystery and provides the 'right' answers.	3. Trainer is a learner with similar problems to those of other learners; he may add to rather than dispel the mystery. He questions the existence of 'right' answers.
4. Trainer keeps learning; is relatively anxiety free by minimising ambiguity and concentrating upon questions of reason and fact. Learning is primarily intellectual. etc.	4. Trainer encourages the expression of feelings and emotions and the view that perceptions and feelings are often more relevant than 'facts'. He knows learning, that is, moving from the known to the unknown, may involve considerable anxiety and he attempts to provide a trusting environment in which learners can experiment and risk take. etc.

A colleague has compared some of the features this type of learning*, which he refers to as 'experiential learning', with those of the more conventional or 'knowledge-based' learning, as shown in Table 11.

*'Learning in Management Education', by M. J. Pedler. *Journal of European Training*, autumn 1974.

Some methods of data collection

Finally, in Appendix 2, I have attempted to set out the main techniques employed to obtain data for identifying training needs and to indicate the strengths and weaknesses of each method.

Appendix 1
Some characteristics of five approaches to training

Systematic training approach

(*See also Appendix 3, page 43*)

Underlying values
- relevance of training needs to job training needs. Job requirements dictate training needs; job requirements in turn are dictated by need to achieve organisation's objectives.

Goals
- improved job performance through changes in skill and knowledge
- measured benefits greater than costs
- specified learning objectives met to a specified extent
- measurable improvement in the attainment of the organisation's objectives

Activities emphasised
Diagnosis (*identification of needs*). Strongly emphasised; systematic search procedures to identify areas of weakness that training can help; job analysis to identify skill and knowledge requirements of specific jobs; appraisal systems to highlight needs of individuals, relating these to job performance.
Action planning. Setting learning objectives in specific detail; systematic programme planning with some degree of flexibility.
Implementation. Wide range of learning methods to meet specified objectives; at-the-job methods sometimes used, but some over-emphasis on courses and off-the-job training.
Evaluation. Strongly emphasised; measurement of learning, effects on subsequent work performance, cost/benefit analysis if at all possible.

Advantages
- scientific rigour helps new trainers to grasp complexities of the job
- emphasis on results, that is on outputs, rather than on inputs and processes (trainers' efforts)
- emphasis on identification of needs assists trainers to concentrate on what learner needs to learn rather than on what trainer wants to teach
- provides a framework for rigorous evaluation
- readily appears 'professional' to layman so tends to inspire certain amount of respect
- emphasis on job results tends to match client's felt needs and expectations
- as a result of last two points above, tends to have high credibility generating effect

Disadvantages
- emphasis on measurement tends to cause trainers to shy away from less tangible elements
- combination of desired specificity of objectives with the great difficulty in achieving such specificity for meaningful learning tends to lead to trivial learning outcomes, hence many important problems and issues are ignored
- emphasis on items of immediate relevance to job can lead trainers to discount long-term individual growth
- a tendency to undervalue the contribution that the learner can make to his own learning
- hence a tendency to encourage learner dependence

Organisation development approach

Underlying values
- humanistic value system
- importance of helping people work in groups
- openness and trust
- confrontation and working through of conflict

Goals
- shifts in values towards those of OD practitioner

– change in organisational climate to one in which individual and task needs are more valid than role or status needs
– flexibility in response to change
– matching of individual and organisational needs

Activities emphasised

Diagnosis (identification of needs). Heavy reliance on people's feelings and attitudes as data. Tends to concentrate on diagnosis of organisational climate, management style, intergroup conflict. Diagnostic phase is often combined with implementation, by obtaining and using data immediately with clients.

Action planning. Rather little; emphasis on doing something now and making changes as we go along; highly flexible.

Implementation. Emphasis on interventions at work rather than on courses as such. Tendency to work with groups of people who normally work together rather than with courses made up of individuals from different backgrounds.

Evaluation. Reliance on participants' reported feelings. Also continuous monitoring to change interventions as they occur.

Advantages

– recognition of importance of group and social context of work
– interventions used are directly related to work context and therefore ensure both relevance to needs and transfer of learning
– provides the means for treating a whole range of problems of conflict, motivation, communication
– contributes to personal growth of participants
– strong tendency to allow learner full participation in identifying his own learning needs and in achieving these. Leads to learner independence.

Disadvantages

– requires particular skills which are not readily available
– if carried out by unskilled practitioners can have very destructive effect on both organisations and individuals
– OD advocates tend to become carried away with importance of their goals and ignore other problems, for example, technical or structural
– successful OD programmes usually require a relatively long time
– the whole OD approach often mismatches client expectation and values
– the basic values and techniques often appear extremely threatening to client
– as a result of the last three items above, OD often has a low credibility effect

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Administrative approach

Underlying values

– meeting requirements of formal system
– carrying out prescribed duties; following instructions laid down from above

Goals

– carrying out prescribed tasks in the specified way by specified time
– smooth running of training function
– comprehensive record systems

Activities emphasised

Diagnosis (identification of needs). Little or none. Rules, regulations, tradition, precedent, resource availability determine what training will take place.

Action planning. Setting up courses by negotiating with those providing policies, resources and trainees. Tendency to make rigid plans.

Implementation. Acts as a course tutor, implements information and control systems.

Evaluation. Not emphasised. Seen in such terms as: How many courses were run? Was the budget adhered to? Did the arrangements go smoothly? Did the participants enjoy the course?

Advantages

– allows for smooth running of established courses
– hence provides a useful public relations image to outside world
– often matches client expectations
– requires relatively short lengths of time to mount standard course in a new situation
– as a result of last two points above, often has a high initial credibility effect

Disadvantages

– tendency within the context of laid-down rules to play for maximum safety, thus leading to minimum adaptation to change
– largely unresponsive to real needs
– reliance on *courses* leads to inability to meet types of learning need
– rules and procedures become an end in themselves

Welfare approach

Underlying values

– all training is good, especially if it leads to qualifications
– well-planned career patterns

Goals
- ensuring that as many people as possible receive some form of training
- provision of courses for all who want them
- reduction in anxiety of those undertaking training about administrative, academic or work-related aspects of their course

Activities emphasised
Diagnosis (*identification of needs*). Needs are seen in terms of matching available courses with qualifications required for career planning.
Action planning. Makes appropriate administrative arrangements to ensure people can attend courses at educational institutions.
Implementation. Liaising with educational institutions to ensure course attendance is satisfactory; may also do some internal teaching, especially on induction courses. Often carries out counselling activities, usually in response to a cue of poor attendance, bad course marks, reports and so on.
Evaluation. Major criterion is number of satisfactory examination results.

Advantages
- provides the individual with opportunity to obtain qualifications
- often is also the only opportunity that the individual gets to discuss other areas of concern to him

Disadvantages
- the training effort often has little relevance to the achievement of the organisation's goals
- often perceived as 'soft'
- therefore tends to have low client credibility value

Political approach

Underlying values
- growth, prestige, influence of the training function; self aggrandisement of trainer

Goals
- obtaining as much credibility, resources, power, influence, fame, prestige and so on as possible
- creating the right impression
- hence priority is given to meeting the training function's own needs rather than those of the client

Activities emphasised
Diagnosis (*identification of needs*). Diagnosis is not so much in terms of client needs but opportunity for the training function to achieve its goals.
Action planning and implementation. Opportunistic, pragmatic, whatever *seems* to meet client expectations and needs – the latter in order to impress the client.
Evaluation. In terms of the influence, prestige and so on of the training function.

Advantages
- meets training function needs
- may be an essential strategy in order to gain credibility and then switch to another approach in long term

Disadvantages
- the meeting of training function needs may or may not coincide with meeting of client needs. (In long term client must believe his needs are being met, even if this is not so.)

Appendix 2
Some data-collection methods

Note: T = trainer; R = respondent

Interview-structured method
(for individuals)

What happens?
T plans the interview carefully, preparing all the questions in advance according to a highly predetermined schedule of what he wants to know.

Strengths
- relatively quick to administer
- unskilled interviewers usually feel more confident when supported by a rigid pre-structure

Weaknesses
- assumes that T can think up every question in advance
- becomes rigid; totally unresponsive to cues that R gives if these do not form subject of a predetermined question
- close-ended

Interview-unstructured method
(usually for individuals but can be used with groups)

What happens?
T 'plays it by ear', gets R to talk, looks for cues and explores them if and as they arise.

Strengths
- flexible; responsive to 'new' data brought out by R
- open-ended

Weaknesses
- usually takes much longer than a structured interview
- more difficult than structured interview. Requires greater skill to get R to talk freely, to look for cues, to probe, to evaluate data.

Interview semi-structured method
(usually for individuals)

What happens?
Between structured and unstructured. T notes down in advance the main areas he wants to examine, but allows R to respond freely, playing it by ear to a large extent, following up cues and so on, but makes sure that all the main areas have been covered before ending the interview.

Strengths
- combines advantages of ensuring ground is covered with flexibility and possibility of exploring new avenues
- fairly open-ended

Weaknesses
- takes longer than structured interview
- more difficult than structured interview
- desire to cover all main points may cut R off; R may feel he is being manipulated or that T isn't *really* interested in his views

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Counselling interview method
(for individuals)

What happens?
T gets R to talk then reflects back to him what he has said and its implications. R thus thinks about his own behaviour.

Strengths
- flexible
- open-ended
- as well as data collecting, has strong feedback role; that is, R thinks about what he is saying and often changes his behaviour as a direct result. Thus, as well as diagnosis, counselling has action planning and implementation functions all in one.

Weaknesses
- takes a long time
- particularly difficult both for T and R
- tends to mismatch R's expectations – it comes as a shock to be asked really to think about his own responses and behaviour

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Peer interview method
(for pairs or groups)

What happens?
Trainees (either in pairs or in small groups) interview each other, using structured, semi-structured, unstructured or counselling approaches, to help each other to identify their own needs and issues.

Strengths
- very useful if using a learner-centred approach
- hence can identify real issues and gain trainees' commitment

Weaknesses
- trainees sometimes find it difficult to interview each other. A reasonable level of skill and trust is necessary.
- trainees often believe that T should know their needs and therefore they resent this method

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Questionnaire method
(for individuals or groups)

What happens?
T plans questions and predetermined data needs, then presents these questions in written form to R. Presentation may be face to face or often at a distance, 'through the mail'.

Strengths
- once designed and prepared, one questionnaire can be used for many Rs
- thus, this a relatively quick way of obtaining data from a large sample
- lends itself to legitimate statistical analysis

Weaknesses
- good questionnaires are surprisingly difficult to prepare
- bad questionnaires are incredibly easy to prepare
- rigid and close-ended
- Rs often resent completing questionnaires

Scale method
(for individuals or groups)

What happens?
T prepares rating scales around data needs; for example, 'how often are you consulted about the goals of the department? – very often/sometimes/occasionally/rarely/never'; 'how much feedback are you given about your performance? – none/little/some/quite a lot/very much'; 'how much time is spent on explaining the reasons for doing things? – too little/about right/too much'.

Strengths
- once designed, may be used with many Rs
- response is very rapid
- thus, a relatively quick way of obtaining data from a large sample
- particularly useful for obtaining R's opinions, attitudes, feelings and so on
- scales form a ready way of feeding back data to a group
- often extensively used in OD-type problems, for example, measurement of leadership, style, organisation climate
- lend themselves to statistical analysis

Weaknesses
- surprisingly difficult to prepare scales that have high validity and reliability
- amazingly easy to prepare scales that have low validity and reliability
- close-ended

Diary method
(for individuals)

What happens?
T asks R to complete a diary showing what he does every day over a particular length of time (for example, a week). May be combined with random sampling, that is, diaries filled out for random days over a long period of time.

Strengths
- requires little preparation
- potentially may explore all aspects of R's job
- open-ended

Weaknesses
- time consuming for R
- often unpopular with R

Critical incident method
(for individuals)

What happens?
Instead of completing a diary of everything he does, R is asked to write a brief note every day (or once a week) about the most difficult thing he had to do that day (or week).

Strengths
- requires little preparation
- less time consuming and less unpopular than the diary method
- helpful for focusing on problem areas

Weaknesses
- still tends to be fairly unpopular with R
- danger that focusing on problems ignores other important areas of data
- rather close-ended

Role set analysis method
(for individuals or groups)

What happens?
T asks R to identify his 'significant others' – that is, those people in his organisation who have expectations of him and who are involved with his work. He is then asked to write down what he feels these expectations to be. This can develop into role negotiation, in which each member of a group, having identified these expectations, discusses them with the other members and negotiates agreements to undertake various roles and behaviour.

Strengths
- a very useful way of helping individuals to highlight their own needs

Weaknesses
- Rs often find that they don't know what is expected of them. (But this in itself can be helpful, by identifying the fact that they should find out.)

Brainstorming method
(for groups)

What happens?
T poses question to a group of Rs; Rs shout their responses, which are written up on a board *without comment of any kind.* Rs tend to make further responses. After a time each response is examined in detail in turn.

Strengths
- requires little preparation
- interaction tends to bring out new information, ideas, creative comments
- also has a feedback, action planning role

Weaknesses
- requires reasonably free climate

Sensing method
(for groups)

What happens?
This is a technique which is useful for finding out what a group feels about its manager, what one group feels about another group and so on. T asks the group, in the presence of, say, the manager or other group, to say what it feels about that manager, other group and so on. The latter, although present, just listens.

Strengths
- useful for finding out these sort of data
- at some time has a feedback role to the other parties (for example, the manager)
- open-ended

Weaknesses
- requires a reasonably open climate
- requires skill by T in handling conflict
- above all depends on other party's (for example, manager's) ability to listen effectively and on his willingness to confront in this way

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Organisation mirroring and confrontation meetings method
(for groups)

What happens?
A meeting at which one group finds out what another group thinks of it (for example, top management may meet with representatives of consumers). The data may be collected by interviews, questionnaires or instruments and are then discussed by both groups.

Strengths
- an excellent way of attacking extra-organisational and inter-group conflict issues

Weaknesses
- time consuming
- requires specific skills in handling conflict
- requires a certain degree of openness to criticism and willingness to accept adverse feedback

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Drawings, collages method
(for individuals or groups)

What happens?
Group of Rs draws or makes a collage of the organisation, the work group, other groups and so on as it sees them

Strengths
- a very expressive way of identifying feelings
- involves good fun
- has strong feedback role

Weaknesses
- may be difficult to interpret
- may be considered gimmicky or games playing

Physical representation method
(for groups)

What happens?
Members of a group are asked to arrange themselves physically in the room according to some group characteristic they are troubled about.

Strengths
- rapid and dramatic
- strong feedback role

Weaknesses
- often considered gimmicky and too 'way out'

Third-party intervention method
(for pairs)

What happens?
A neutral third party (for example, T) helps two people who are having conflict (for example, boss/subordinate). He often interviews each one separately first and then brings them together to try to iron out the difficulties. This is often done by trying to get each person to understand the other's viewpoint, by rephrasing what the other person says, by clarifying each other's statements, by trying to grasp how the other person feels about the issue and so on.

Strengths
- a very valuable method of tackling interpersonal conflict

Weaknesses
- requires great skill
- often time consuming
- each of the two people must have some commitment to tackle the problem

Appendix 3
Systematic training in ten steps

1. Identify the training needs and priorities

(i) For which occupations will planned training be required – (*a*) because of current weaknesses? (*b*) to cater for future developments?

(ii) How many people will need training for these occupations?

(iii) Decide priorities – (*a*) What are the most critical areas? (*b*) Where will planned training bring the biggest and/or the quickest return? (*c*) What resources/constraints will affect these decisions?

2. Examine the occupation chosen as priority

Is it, in fact, necessary or can the whole system profitably be reorganised to obviate its necessity?

3. Analyse the occupation. Prepare:

(i) Job description,

(ii) Job specification
and, if necessary,

(iii) Further analyses of skills, knowledge and, possibly, attitudes, in order to identify areas of difficulty which will thus affect the choice of what must be learned and of appropriate training techniques.

4. Specify, select and appraise the people to be trained

(that is, determine the *target population* for whom training will be intended)

(i) What aptitudes/personal traits are required (noted on the personnel specification)?

(ii) Will we have to recruit and/or retrain present employees?

(iii) Which of the specified skills, knowledge (and, possibly, attitudes) do the target population already possess? (When compared with the job specification, this will give the 'training gap' or training specification.)

5. Set the training objectives

What must the trainees be able to do, and to what standard, after the training? (This is known as the 'criterion behaviour'.)

6. Draw up a syllabus

The content required to fill the training gap in order to achieve the objectives.

7. Plan the training programme

This gives the detailed tactics of training in order to ensure that the objectives will be achieved.

(i) In what sequence will learning take place?

(ii) How will learning be caused?

(iii) By whom will learning be caused?

(iv) Where will learning take place?

(v) How long will be required for learning?

(vi) What resources are required? Do we possess these or can we obtain them? What other constraints obtain?

The answers to point (vi) may mean reconsideration of steps 1, 4 and 5 above.

8. Implement the training programme

(that is, cause learning to take place)

9. Check the training

(i) Has the training achieved its objectives?

(ii) Were these objectives the right ones?

(iii) Were the results worthwhile? – have they justified the costs?

(iv) In future, could the same results be achieved more economically/effectively by other means?

10. Follow up the training

(i) Ensure that trained personnel put into practice what they have learned;

(ii) If they do not do so, or are not allowed to do so, then identify further needs and return to step 1.

A select list of BACIE Publications

A Manager's Guide to Coaching *by D. Megginson and T. Boydell.* 1979. 44pp. 5,000 printed.

This publication provides guidance for the manager and trainer in initiating coaching in his department or the organisation, or improving upon the existing coaching process.

Lecturing to Large Groups *by L. S. Powell*
4th impress., 1979. 12,000 printed.

The author vindicates the lecture as an important teaching method and gives detailed guidance as to how it can be made purposeful and effective.

A Training Officer's Guide to Discussion Leading *by A.I. S. Debenham.* 6th impress., 1980. 32pp. 24,000 printed.

A guide to the control and handling of a discussion. Includes sections on the use of questions and handouts, and gives specimen discussion outlines.

A Trainer's Guide to Group Instruction
by Richard Ayres 1977. 32pp. 5,000 printed.

A practical guide to this successful training technique with examples and reader's tasks.

A Guide to Job Analysis *by T. H. Boydell.* 5th impress., 1981. 32pp. 22,000 printed.

A step-by-step guide to the process of analysing a job: job description, job specification, identification of the skills and knowledge required for each occupation, and further analysis of tasks and social skills. Diagrams and tables clearly illustrate the information necessary at each stage.

A Guide to the Overhead Projector *by L. S. Powell.* 3rd edition, 1980. 27,000 printed.

A concise description of the instrument itself and its use as a training aid, with a detailed explanation of the production of effective transparencies, diagrams and models.

A Guide to the 8 mm. Loop Film *by G. H. Powell and L. S. Powell.* 1967. 43pp. 5,000 printed.

Describes film-making techniques, equipment and the loop film as a teaching aid. Designed specifically for practising teachers and training officers, the book assumes no prior knowledge of film techniques.

Case Studies for Practical Training 1977. 128pp.

Contains 115 cases written by trainees attending BACIE's Techniques of Instruction part 2 course. A matrix index helps readers identify the issues in each case, and the use of cases is discussed in the Introduction.

Training for Decisions: A Tutor's Manual
by Dr John Adair. 1976. 128pp.

This package of loose-leaf exercises, handouts and trainer's notes forms a complete course in decision-making skills for use by trainers of management.

A Handbook of Management Training Exercises *edited by J. Adair, R. Ayres, I. Debenham and D. Desprès.* 1978. 160pp.

Contains practical exercises for developing management skills, with briefing notes for instructor and trainee. An introduction and background notes set the exercises in context.

Planning Your Manpower: an aid to a year's training for small units. 3rd impress., 1983. 18pp. 9,000 printed.

Provides a comprehensive framework within which the training needs of a department or unit of up to 44 persons can be identified and recorded, thus forming both a working document and a record of training accomplished. It is closely modelled on the aid developed over a number of years by the Ceramics ITB for its in-scope members.

The Evolution of British Manpower Policy, from the Statute of Artificers, 1563, to the Industrial Training Act, 1964 *by Dr P. J. C. Perry, OBE.* 1976. 352pp. 1000 soft cover, 500 hard cover printed.

In this book, originally prepared as a doctoral thesis, the author sets out the historical background to the 1964 Act and goes on to analyse its origins, purposes, provisions and effects up to the passage of the 1973 Employment and Training Act.

A complete list of available publications can be obtained on request from:

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- A unique specialist library and documentation centre contains one of the largest collections of training documents in this country, most of which are available on loan to members who are welcome to visit and use the library and documentation centre.

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- BACIE runs frequent courses and seminars developed over many years to suit the training needs of members. These include such well-established courses as Techniques of Instruction, Effective Presentation and Visual Aids, as well as more recent additions such as Job Analysis, Producing Training Packages, and Identification of Training Needs. Details are published in the *BACIE Journal*.

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